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## The Storage Battery.

On the evening of October 25th Mr. Harry A. Nicholl, Superintendent of Power of the Rochester Railway Company, read an interesting and instructive paper on "The Chloride Accumulator," before the Rochester Academy of Science. The paper in full follows. Mr. Nicholl said:

In prefacing my brief remarks this evening, please permit me to say that I will only attempt to give you a general description of the construction and uses of the "Chloride Accumulator," or Storage Battery, as is now constructed for electric plants by the Electric Storage Battery Company, of Philadelphia, Pa., and as is now being installed in this city for the Rochester Railway Company. Please bear in mind that all the figures, dimensions, etc., which I will hereafter give, pertain only to the plant of the Rochester Railway Company.

Briefly stated, the battery in its entirety is composed of 248 cells, each cell, if taken singly, being in itself a complete battery, capable of being charged with an electric current or discharged. These 248 cells are all connected together in series, so that the electric current will pass through each of them consecutively, the first and last cell being connected with the outside circuit or course, and with which the battery is to operate. The capacity of the battery is 700 ampere hours, and its total weight about 115 tons, each cell, or element, weighing 925 pounds.

The contents of these cells consist of 10 negative and 9 positive plates, each 15 feet 2 inches square; 2 sheets of heavy glass  $\frac{1}{2}$  inch thick; 2 strips of lead  $\frac{1}{4}$  inch thick and 3 inches wide by 20 feet long; 36 glass tubes 18 feet long by  $\frac{1}{2}$  inch diameter; 4 strips of hard rubber 3-16 in. thick by  $\frac{3}{4}$  in. wide and 7 in. long, and sufficient sulphuric acid solution to nearly fill the tank. The tank itself is made of wood  $1\frac{1}{2}$  inches thick, and is  $29\frac{3}{4}$  in. wide by  $20\frac{3}{4}$  in. long and  $23\frac{3}{4}$  high, and is lined with sheet lead. The tank or cell is placed upon porcelain insulators resting on a wooden skid or frame made from ash of  $2\frac{1}{2}$  in. by 4 in. cross section. This frame is set upon vitrified bricks of the usual size, the bricks resting on the ground or floor of battery room. The tanks are very strongly constructed and are put together without the use of screws, all the joints being dove-tailed and glued. The outsides of the tanks are treated with two coats of acid-proof composition. The lead lining in the tanks is made from lead sheets 1-16 in. thick, weighing 4 lbs. per square foot, all properly burned together, and extends over the top of the tank and down the outside for about one inch. The tanks are larger than is necessary to hold the 19 plates, space being

purposely left for an increase of  $33\frac{1}{3}$  per cent. if required.

The positive plates, 9 in number to each cell, are made of an active material of peroxide of lead, formed after the Plante method on a rosette or coil of rolled lead tape corrugated and coiled and pressed into an antimonious lead frame or grid (which is made with holes in it to receive these rosettes), which makes a practically non-corrodible, rigid and conductive support. In each positive plate there are 279 of these little rosettes, which are about  $\frac{1}{2}$  in. thick and  $\frac{3}{4}$  in. diameter. In making these little rosettes they are taken from lead ribbon placed on reels, and fed into a coiling machine, the function of which is to corrugate and cut it into proper lengths and coil it into rosettes of required size. The rosettes are placed in templates, and are driven into the lead grids by hydraulic pressure. The plates are made in this manner so that the greatest amount of surface might be exposed to the electrolyte. These plates, as well as the negative plates, are put into the tanks in a vertical position, parallel to each other, and spaced about  $1\frac{1}{2}$  inches apart, the first plate being about two inches from the side of tank.

The Negative plate is composed of pastilles of chloride of lead, keyed together with a frame of antimonious lead, which is forced around them, and from this chloride the name, "Chloride Accumulator," is derived. In each negative plate there are 64 of these pastilles, each one of which is divided by two small grooves on each side, perpendicular to each other, which forms four square subdivisions, each being  $\frac{3}{4}$  in. square, making 256 squares in each plate. They are then placed in moulds and held in position by pins stuck through small holes left in the center of them. The lead frame or grid is then cast around them. The plate is then reduced by placing it between sheets in an electrolyte of chloride of zinc, thereby eliminating the chlorine from the chloride and reducing the pastille to a very porous crystalline mass of spongy lead, the crystals of which lie transversely to the plane of the plate, and are beautifully pronounced, being visible to the naked eye. The plates are then cleaned and placed in tanks as cathodes to the current, which is applied for several hours, this test being made to insure the entire elimination of the chlorine.

The plate glass which is used in the tanks is  $\frac{1}{2}$  inch thick and 24 in. long, and 20 in. high; and is placed vertically and about  $\frac{1}{2}$  in. from the sides of the tank. Its office is to afford a rest for the positive and negative plates and to properly insulate them from the sides of the tank and from each other.

The two lead strips are placed in the bottom of the tank and on these the glass sheets rest. The strips are merely made

for a protection to the bottom of the tank.

The 36 glass tubes are placed between the negative and positive plates in a vertical position, one on either side, so as to prevent them from coming in contact with each other.

The four hard rubber strips are made with holes in them just large enough to receive the glass tubes, and their office is to keep the glass tubes properly suspended, the rubber strips themselves resting horizontally on the upper part of the plates in a place prepared for them.

The wooden frames are put together with dowel pins and glue, no nails or screws being allowed to be used in their construction, on account of the destructive effect of the fumes of the battery on the metals of which they are made.

The porcelain insulators are single petticoated and are about 3 in. in diameter by  $2\frac{1}{2}$  in. high. They rest on the frames, and securely insulate the tank from them.

The vitrified brick are used on account of their indestructibility, and because they can be placed in a damp or wet place without absorbing moisture.

The bus-bars or straps connecting the plates of the different tanks are run the full length of the tank and are made entirely out of lead about 7-16 in. thick and shaped somewhat like an inverted "U." On this strap the positive plates are burned onto one side, and the negative plates of the adjoining tank on the other side. This arrangement completes the electric circuit between the tanks, the acid forming it in the tanks. The straps of the end tanks are reinforced by copper strips, in order to increase their conductivity and to insure uniformity of discharge.

In order to place so many tanks in the allotted space, 10 rows were required to be made. The space or aisle between every other row is about three feet wide, and in connecting the end tanks on either side of this aisle, strips of copper, lead-coated, are used, of  $1\frac{1}{2}$  in. by  $\frac{1}{2}$  in. dimension. The copper is lead-coated to prevent any chemical action the battery fumes might have on the copper.

All the connections of the battery plates to the leaden straps or bars are made by burning the lead together. This process of burning is carried on with the greatest care, making a perfectly homogenous weld, as no other metal than that of the respective parts is used. For the burning, a hydrogen flame is employed, which leaves the surface of the metal pure and unoxidized. The hydrogen gas is manufactured in a small apparatus built for the purpose. It consists of a large lead bottle with a large neck cast in the middle, and on the top also, and to one side of the neck is a very small nipple and valve. About six inches from the bottom of the bottle is a second bottom, which is perforated, and

on this the zinc employed in making the gas is placed, through the bottle neck. Above this bottle is suspended another leaden tank, into which the sulphuric acid is placed, and from this upper tank the acid runs down through a small lead pipe into the large bottle, and under and through the perforated bottom, where it comes in contact with the zinc, where the chemical action of the acid on the zinc produces the hydrogen gas, which rises to the top and is piped through the small valve to where it is needed.

The chemical action that takes place in the battery may be briefly outlined as follows:

During the charge the water of the solution in which the plates are immersed is split up by the electropic action into hydrogen and oxygen, the hydrogen being absorbed by the pores in the negative plate, and the oxygen going to the positive plate. The water is thus drawn from the solution, which accounts for the fact that the density of the solution is highest at the end of charge. The effect of the oxygen on the positive plate is to convert the active material into peroxide of lead; and the hydrogen on the negative plate reduces the active material to spongy lead.

On the discharge, the hydrogen and oxygen gases are reunited in the solution, forming water, and reducing its density. The loss of oxygen by the positive plate, and hydrogen by the negative plate, reduces the peroxide on the positive plate and the spongy lead on the negative plate to sulphate of lead. The difference of potential between peroxide of lead and spongy lead is about 2.05 volts, that being the potential at the end of charge. As the peroxide and spongy lead are gradually reduced to sulphate of lead by the discharge, the potential difference gradually drops, the drop increasing as the sulphate is formed. In ordinary work, when the potential is down to 1.8 volts the cells may be considered discharged, as it is not wise to form too much sulphate.

The method of ascertaining when the battery is charged is by testing the density of the solution by an hydrometer, and by noting the state of the "boiling" of the solution.

In connection with the battery an electric machine called a Booster is used. It consists of a motor and generator connected directly to the same shaft. The motor is a multipolar machine of 550 volts and 100 amperes capacity, and runs at 600 revolutions per minute, and acts in the same capacity as an engine, merely attached to drive the generator end of the booster. The motor takes its driving power directly from the bus-bar of the railway switchboard. The generator is a compound, differentially wound machine, and is of 70 volts and 500 amperes capacity, and is connected up in

series with the railway generator and battery, the battery itself being connected in multiple with the railway generators.

The important offices the booster fills are: When working in the railway circuit. To regulate the charging and discharging of the battery as well as the load on the engines, constantly keeping them running at a steady speed and doing the same amount of work, and when the plant is being run independently of the outside circuit, for charging the battery (this is after all the cars are run into the barns for the night), the booster raises the potential of the railway circuit sufficient to overcome the potential of the battery, which allows same to be readily charged to its full capacity.

In charging the battery the occlusion of gas on the plates raises the counter E. M. F. of the cell, requiring an increased pressure from the charging source to force current through the cell. This increased pressure is taken from the booster. The lower the rate of charge, the less gas will be formed, and consequently the less marked will be the rise in the C. E. M. F. The higher the rate of charge, the more gas will be formed, with the consequent increase in the C. E. M. F. of the cell. At the normal rate of charge the cell may be considered full when a sufficient amount of gas has been gathered in the pores and on the surface of the face to produce a counter E. M. F. of 2.5 volts per cell, with the charging current flowing. The moment the charging current is discontinued the gas on the surface of the plates escapes and the C. E. M. F. of the cell immediately drops, and if the cell be allowed to stand idle for a short time, the pressure will be down to about 2.05 volts per cell.

The close regulation of the current is done through the reversing field rheostat, which controls the shunt field winding of the booster generator, and prevents its terminal voltage being varied from zero to a maximum in either direction.

The advantage of this system of regulating may be summarized as follows:

Saving in depreciation of general plant, as it is relieved of the strain of sudden and excessive loads.

Reduction in coal consumption is effected, as the plant runs at a steady load, and at or near the point of highest efficiency.

As an element of safety, as in the case of accident to the engine or dynamo, necessitating a stoppage, it will supply the requisite power for a length of time depending upon its capacity.

Permits the plant being shut down entirely during hours of light load, the battery supplying the whole of the current.

A smaller generating plant is required, as the battery takes the "peak" of the load, which usually lasts for a few hours only, and where no battery is used suffi-

cient generators are required to be installed to provide for the maximum output.

In conclusion I shall merely outline the application of batteries in Europe, to indicate the extent to which they are used there.

The Tudor Company, with its principal works in Hagen, has in operation batteries in over 200 central stations, 15 railway and power plants, and over 5,000 isolated plants. An officer of the Tudor Company who was in this country a year or so ago, made the statement that their 7 or eight years' experience in central stations in Germany indicated that the use of storage batteries insured a reduction of 33½ per cent. in the generating capacity, a saving of from 20 to 50 per cent. in coal consumption, a steady load for the engine, and a reserve power always on hand.

In the stations at Dusseldorf, Hanover and Barmen, Germany, there are batteries having a yearly output of 42,000, 155,000 and 216,000 kilowatt hours respectively, being from 35 to 61 per cent. of the total net output of the stations.

In France there are 54 stations operating batteries, exclusive of those in Paris. In that city there are some 30 storage battery stations. Twenty-five sub-stations are operated on the Popp system, each station being equipped with one, two or three batteries of a type manufactured by the French Chloride Company. The batteries are discharged at rates ranged up to 2,000 amperes each, and have a total capacity of 100,000 lamps. Four other stations in Paris have each 3,200 ampere hour batteries of the Chloride type.

In the St. George station of the Edison Company, in Paris, there is a battery of 128 cells, with a discharge rate of 800 amperes.

In the United Kingdom there are 48 electric light companies furnishing continuous current; 35, or 74 per cent., use batteries in their central or sub-stations.

In Switzerland there are about 180 lighting plants using accumulators. Many of these batteries are charged from dynamos driven from water power.

In cities of our own country we have some very large installations, a few of which I will mention:

	Ampere hour cells
Philadelphia Edison Co., Phila. . .	8,000
Edison Electric Ill. Co., Boston . .	14,000
Edison Electric Ill. Co., New York .	8,000
They are also putting in three batteries aggregating . . .	
Edison Electric Ill. Co., Brooklyn .	10,000
Hartford Elec. Light Co. . . . .	9,600
San Francisco Gas and Elec. Co. . .	6,000
Cleveland Elec. Illuminating Co. .	4,000
U. S. Elec. Lighting Co., Washington	4,000
Union Traction Co., Philadelphia . .	1,000
Consolidated Traction Co., Pittsburg	2,000
Central Railway Co., Baltimore . . .	1,000
Buffalo Railway Company, the largest battery in the world used for street railway purposes . . . . .	1,000
And the Chicago Edison Co. . . . .	12,800

the latter being the largest lighting battery in the world.

The Metropolitan St. Ry. Co., of New York, is now installing, in connection with their underground trolley system, two batteries each of 2,500 K. W. capacity, which will exceed in capacity anything heretofore installed in the storage battery line.

#### TAKE TIME TO BE HUMAN.

By HERBERT N. CASSON in Coming Nation.

Take time to be human, my hurrying friend;

Your wealth-gaining projects, like bubbles, shall end.

You may be acquiring not treasure, but trash;

There's much in the world, friend, besides credit and cash.

Take time to be human; beneath the sky's blue

The birds in the forest are richer than you. Go learn of the lily, the river and the plain, That life is too sacred to squander for gain.

Take time to be human; develop your mind; Commune with earth's thinkers—wise guides of mankind.

Let Hugo and Ruskin, Carlyle and Thoreau,

Instruct and inspire you, till nobler you grow.

Take time to be human; love Nature and Art;

No money can purchase what these can impart.

The raptures of music, and beauty's sweet form,

Like sunshine, will ripen, and keep your heart warm.

Take time to be human; remember the poor;

No language can picture the woes they endure.

Don't make life a failure by missing Love's goal;

Don't grab a few dollars, and lose your soul.

#### From "Old Crip."

Raton, N. M., Nov. 5, 1898.

Editor Electrical Worker:

The 5th is here again and it reminds me that I must send a line to the Worker. As I live remote from any large city, I do not have the opportunity to get together any interesting electrical news, but I feel that I should write a few lines every month.

The chilly blasts of winter are here, and find "Old Crip," as usual, without any visible means of support: but all I can do is to "grin and bear it," which I shall endeavor to do. However, there is very little consolation in grinning on an empty stomach.

'Twill soon be three years since I have used hand or foot, and it seems thirty years to me. How terrible is this awful affliction, from which there seems to be no hope of recovery.

I feel very grateful indeed to the members of this B. who have helped me along this rugged pathway.

Since my last report I have received the following from locals for my books: Local

No. 60, \$5; Local No. 56, \$1.50; Local No. 68, \$1.25; Local No. 75, \$5. These amounts may seem small to those who have sent them, but they are large to me. Brothers, I would not ask you to buy my book if I could use my hands or feet as of yore.

With best wishes for the members of the Brotherhood,

I am, gratefully,

ROBERT G. WRIGHT.

#### Notes of Industry.

It costs about \$1,000 to build an electric cab of the kind now in use in Paris.

In Illinois during the past year 118 coal mines were abandoned and 79 mines opened.

The cost of fuel on steam railroads is about ten per cent. of the operating expenses, and on electric roads is about five per cent.

A glass firm lately received an order for 500 glass fence posts, to be of the usual size, and grooved for the reception of wire.

The Canadian government has sold the water power rights at Shawinigan falls, on the St. Maurice river, province of Quebec. They are expected to develop 200,000 horsepower.

Compressed air has recently been adopted for cleaning the interior work of some railway passenger cars, and is said to give very satisfactory results, saving 10 per cent. in time and 50 per cent. in thoroughness, sweeping, dusting cushions and cleaning carpets thoroughly without wear.

It is stated that the merchandise carried by rail in the United States is double the amount of land carriage of all the other nations of the earth combined. This means that the 70,000,000 people of the United States transport twice as much merchandise as the remaining 1,400,000,000 of mankind.

The Atchison, Topeka and Santa Fe railroad proposes to build, at its own locomotive shops in Topeka, Kan., the largest locomotive in existence, its main design being for mountain climbing and hauling heavy trains. It is estimated that it will be able to haul a third larger load than any engine at present on the road.

#### THE ENGLISH AWAKENING.

We do not complain of this activity on the part of our transatlantic cousins; we only ask for a fair field, and that our manufactures may be untrammelled by fiscal burdens, or heavy transport rates. But, undoubtedly, John Bull will have to bestir himself, and arm for the conflict. He may find it necessary to take a leaf out of Uncle Sam's book. He is said to be too independent to make a good salesman. That may be true of him when, without putting himself about, he can sell all he can produce. But let him learn to produce more, and to do so more cheaply. If he is to retain his hold on the world's markets, his prices must be satisfactory as well as his goods. But in order to do these things he will have to discard many antiquated methods, and to consign many old-fashioned machines to the scrap-heap, to be replaced with the best of their kind. With better machinery, and heartier co-operation from his workmen, he need not fear of being able to hold his own in all markets.—From

the Trade Journals' Review of Manchester, England.

#### COMMENTS ON MILL EMPLOYEES' WAGES.

One of the bright young lawyers said this week: "I believe the hardest work I ever did in my life was as backboy for mule spinners in one of the Lawrence company's mills. I worked at it about five months and received something like over 30 cents a day. I afterward worked as a machinist in many of the mills, but it did not seem to me as hard as back tending."

This remark resulted from a comment on the backboys' strike. The boys have been paying into a union fund for some time and protested against the low wages early this month. It bothered the mill managers somewhat, as they had to call upon every man in their employ who had been a backboy to assist the spinners while the strike was in progress.

Taken from statements off-hand, one would get the impression that cotton weavers of Lowell were earning from \$7 to \$8 a week. A loomfixer who has an opportunity to see how much work is turned off each week, says:

"There may be weeks in our mill when cotton weavers earn \$7 or \$8 but there are many other weeks when they do not earn that sum. I was talking with a second hand and he told me that the average wages of the weavers under his charge was \$4.50 a week. What puzzles many of the union men, who watch things going on in the mills, is why a bounty is paid second hands. They are on the payrolls for a certain sum per day, but about once in every three months the second hands go to the counting room. One of them told me he did not receive his extra bounty until his bill is countersigned by the agent. Second hands do not know what extra amounts are paid other men holding the same position, as it appears to be a separate bargain each man makes with the agent. We sometimes wonder if that extra is for rushing the help."

#### ELECTRIC RAILWAYS.

In Pasadena, Cal., an ordinance has been passed granting to George Leighton the right to construct and operate an electric railway on certain streets.

Referring to the statement that the rails, wires and poles of the Montreal Street Railway Company have been judicially adjudged to be subject to assessment for municipal taxation, the controller of that company says that there has been a mistake. There has been no such judgment, he states, the question not having arisen in Montreal.

The experiment of having street-car lines owned by the municipality is to be tried in Christiania. Electric lines are to be built in the near future by the city. They are to run toward the eastern limits of the town, the purpose of the city fathers being to encourage the building of homes in that quarter. Now the growth of the city is toward the west and rents there are high. So it appears that the local government even seeks to help the humbler citizens to secure cheaper habitations. Paternalism is assuredly having a fair test in Norway.

## EQUITY OF THE SINGLE TAX.

The reason believers in the Single Tax are such untiring workers for their cause, is that as soon as one has mastered the subject, he must begin the battle for humanity—to establish equity and justice. No longer can he sit quietly by and see his fellows devoured by the monster of monopoly. All was doubt and mystery in the past, but now he thanks the Creator of all things for the light that has broken in on his soul. What is the single tax?

It is the taking of that value which is given to land by the presence of population (in some instances as high as ten million dollars per acre), which no individual produces, and expending it for the expenses of government, national, state and municipal.

How do single taxers propose to put it in operation?

By abolishing all our present taxes.

Will not this discourage industry and economy?

No; on the contrary, it will encourage them by guaranteeing to men the results of their efforts. At present when anyone takes wealth from its hidden place and uses it to increase his business he has the choice of perjury himself or of paying the collector a fine for his enterprise.

If he improves his property, or builds on a vacant lot, thus giving employment to idle workmen and adding to the comforts of themselves and their families—injuring none and benefiting all—we tax or fine him as though he were a common enemy of society.

Will the single tax have any effect in retarding the present tendency of the rich to become richer and the poor to become poorer?

When our forefathers came to the conclusion that a republican form of government was the only form fit for freemen they imagined they had done away with the injustice they had fled from when they left Europe. But their descendants have discovered that the system which produced misery in Europe, was not killed by a change from the monarchical to the republican form; the condition of America will gradually approach the condition of Europe, unless we change our system of taxation, which is the key to the whole trouble. According to the last census, land values, exclusive of improvements, are estimated at from \$1,500,000,000 to \$2,000,000,000 annually. This vast sum is taken annually from our producers and given to a class who, simply as land owners, add not one cent to the wealth produced. The entire expenses of government, national, state and municipal, amounting to nearly the same sum, are also taken from the producer, the collection of which increases the number of office-holders to two or three times the total that would be necessary under the single tax. Our tariff produces the whole brood of monopolies controlling the necessities of life; taxes on real estate result in the bribery of assessors, who assess the property of the poor man at from 60 to 125 per cent of its value, the rich bribe-giver paying on from 15 to 40 per cent of his holdings, while taxes on personal property make perjurers of those wishing to evade payment.

We tax dogs, saloons, etc., to reduce the number, while we exempt churches, schools, libraries, etc., in order that the number may increase; then why, in the

name of common sense, do we tax business houses, manufactories and homes?

Are they so bad that they should be discouraged?

Since our present method of taxation robs the landless for the benefit of the land-owning class, encourages dishonesty among officials, is a premium on perjury, is the mother of monopoly (which is the cause of the present depression in business), robs the present generation of merchants, manufacturers and working people for those who perform no useful act in increasing the annual product, and also robs every child born into the world of its natural right to the free use of the land, which God made for all, and lastly, since it is denied of the Almighty's law that all should share equally in the Father's gift to his children—let us resolve, as human beings who believe in a just God, to do all in our power to abolish a system that has caused much misery and crime in the past, and which is sure, if continued, to wreck our country in the near future.

## FROM THE LABOR WORLD.

There is a stoneware trust.

Tinplate workers at Atlanta, Ind., struck against a cut in wages.

Girls employed in an oatmeal mill at Cedar Rapids, Ia., won a strike.

Under the laws of Arkansas a fine of \$25 is assessed on the company permitting colored people to ride in the sleepers.

Probably the cheapest railroad fares in the world are to be found in Switzerland, where the government owns the railroads. —Sacramento Bee.

Indianapolis painters were locked out because they boycotted a firm that employed men who owed the union money. They got 25 cents an hour.

London has taken up the experiment of municipal street railroads. The South London tramways have been bought by the county council for \$4,250,000.

The movement for the establishment of the ten-hour day for bakers and the abolition of the prevailing system of boarding journeymen is now fairly on foot.

The eighteenth annual convention of the American Federation of Labor will be held at Kansas City, Mo., December 12th. The Knights of Labor will meet at Chicago on November 15th.

The third of the series of conferences arranged by the Journeymen Bakers and Confectioners' International Union for the shorter work day movement in 1899 was held last week.

The famous Federal Labor Union, of Kane, Pa., has gone into politics to the extent of getting all the labor organizations in McKean county united on a labor ticket in the state campaign.

A Cleveland ordinance provides that the cash fares on street railways shall be four cents, and that the tickets be sold at the rate of seven for a quarter. The present rate of fare is five cents, with tickets at the rate of eleven for fifty cents.

The Indiana Barbers' Protective Association was formed last week. The purpose of the organization is to prepare and have introduced in the legislature a bill licensing barbers and requiring better sanitary conditions in barber shops.

A movement has been inaugurated in Pittsburg by trainmen in the interest of better wages. The demand has been placed in the hands of a grievance committee, and will be presented to railroad officials. P. M. Arthur, chief of the Brotherhood of Locomotive Engineers, says that his organization is not involved in the movement.

New York society women have subscribed \$50,000 to start a co-operative shop for the striking ladies' tailors. The fashionable women in New York will be in a sense partners in this enterprise. The Vanderbilts, the Sloanes, the Astors, the Duers and scores of others whose names are synonymous with great wealth and social prestige will be the patronesses of this shop; in fact, kind of silent partners. The tailors ran against their first snag when they went to buy cloth. President Schimmick, Secretary-Treasurer Topstatt and Peter Cain went to the two principal woolen houses in New York to see what terms they could make. They were told that the firms could not sell to the co-operative shop. The reason was given frankly. The firms said that the trade of the fashionable tailors having shops in and near Fifth avenue is worth more to them than that of the men who are now on strike, and they could not have both. "This does not trouble us," said President Schimmick. "We can buy cloth of big retail houses who also do a wholesale business."

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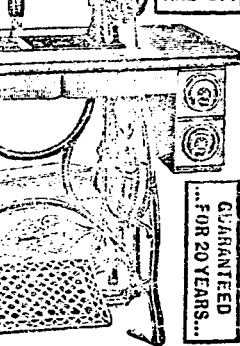
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As The Electrical Worker reaches the men who do  
the work and recommend or order the material,  
its value as an advertising medium can be readily  
appreciated.

ROCHESTER, N. Y., NOVEMBER, 1898.

W. N. Gates, Special Advertising Agent,  
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SPINNING PRINT, ROCHESTER.

**TO FINANCIAL SECRETARIES.**

There has come to our notice recently cases of gross neglect on the part of some of the secretaries—cases where they have failed to remit per capita tax. If some of these brothers would stop and consider what they are doing we are sure they would do different. There is an insurance feature connected with this Brotherhood, as they well know. They are also aware a brother must be in good standing in order for his legal heirs to get the money. Now, if a brother stands good on the local books and no per capita has been sent in to the general office for three months, the brother is not in good standing and is deprived of the benefit. It is a very disagreeable task to write back to a secretary and say the claim can not be allowed, but duty stands supreme with us, and we can not let our sympathy overcome the duty we owe the Brotherhood. There is another clause in the Constitution that says any local two months in arrears is not entitled to death benefits. These clauses will be followed

to the letter, and we hope the members of locals will see that the per capita is sent in, to avoid trouble. In short, Financial Secretaries, do your duty.

**IT IS YOUR PAPER.**

The fact that the Electrical Worker is the organ of the Brotherhood of Electrical Workers as a whole, should not blind brothers to the fact that it is also the organ of each and every member; that communications need not necessarily be confined to press secretaries of the locals; its columns are open to all.

It sometimes seems to us that this fact is not so fully appreciated as it should be, and no greater encouragement comes to its editor than in receiving communications from individual members of locals. It is not that the practice of making it the duty of the press secretary of a local to communicate regularly with the Worker is the less binding; the duty goes without saying; but there is no reason why individual members should not avail themselves of the benefit of its columns as well.

Then there is a bit of selfishness, perhaps, on the part of the G. S. Naturally, he desires that the Worker should reach a high grade in the field of electrical journalism, and he must find his allies among the members of the Brotherhood.

There can be no question about the advantage of a frank interchange of views on electrical subjects in the Worker, on the part of its many readers. Every man has some experience which would be of value to every other man and it does not take much time nor trouble to formulate that experience in a letter to the Worker. Matters come up in every-day experience which would be of interest, not only to members of the Brotherhood, but to many others, who have come to be constant readers of your journal.

The fact that the electrical workers form a very important factor in the industry, must not be lost to sight. They have opportunities for observation not found in the technical laboratories. No matter what branch of the industry may occupy your time, you are sure to observe phenomena which are new, or stumble onto problems which puzzle you. If you discover matters which will interest the rest of us, send your report in to the Worker. If you are puzzled, let us have the conundrum, and some of the brothers may be ready with an answer. If so it will work double tides, and we will all be the better for it.

Remember that the Electrical Worker is your journal and in it you have a proprietary interest. Under our by-laws its immediate management is placed in the hands of the G. S. and provision is also made for communications by press secretaries. That is well, as a matter of order,

but all the same its columns are your columns. Do not be afraid of your views being criticised; you will be given as much space as you desire to get back at the other fellow by way of rejoinder; and there is nothing which adds spice to our humdrum life, like a bit of spirited, good natured controversy. In the columns of the Electrical Worker all men are equal, and we trust that we shall have many communications on subjects of interest.

**TESLA'S LATEST IDEA.**

Mr. Nikola Tesla, the celebrated Hungarian electrician, is credited with still another startling discovery in the way of high potential transmission. It is announced, in the daily press, that he has a plan by which electricity will be generated at hitherto undreamed of potentials and amperage, at natural sources of power, and transmitted to any part of the world, where it can be utilized for all practical purposes. If the announcement had gone no further, it would have been sufficiently surprising. If he had merely solved the problem of long distance transmission by any ordinary circuit, for instance, transmitting current generated at Niagara Falls so that it could compete with steam in New York city, it would have been a triumph which would fittingly round out the present century of progress.

However, according to the announcement, Mr. Tesla has more than fulfilled the wildest dreams of enthusiasts in the matter of long distance transmission, and purposes to accomplish the result without the intervention of vulgar copper wires. In other words he will take the energy of a waterfall, transmit it into electricity and deliver it in any part of the earth, without wires. As outlined he purposes to anchor a balloon reaching to a rarified strata of air five miles above sea level and thence transmit it through this portion of the universe to similar balloons situated where desirable, thus bringing it back to earth and utilizing it for the many purposes to which electricity is applied.

An electrician who has devoted an average lifetime to the art, and who has been very successful in his endeavors on electrical lines, once said to the writer:

"I no longer say that anything in the line of electricity is impossible; if a man should come into this laboratory and tell us that he had an electrical device by which he could stand on a trunk, take hold of the handles, and carry the trunk and himself over to the Central station, I should not conclude that he was a lunatic, but would ask to see his diagrams."

From this point of view, it is perhaps not wise to pronounce snap judgment on Mr. Tesla's latest invention, which at first blush, seems more impossible than the proposition to stand on a chest and lift it



by means of its handles. At the same time it would not be wise for managers of copper mines to close down their plants nor for wire drawers to look about for other occupation, on the strength of the bare announcement of the proposed revolution in current transmission. That Mr. Tesla has accomplished marvels in the way of advancement of the art goes without saying; that he has been engaged upon a great electrical problem, a problem to the solution of which he is tending all his energies, has been frequently stated. Notwithstanding this, one will be excused for not taking a very large block of stock in an aerial transmission company on the plan credited to Mr. Tesla, until he has had an opportunity to look over the blue prints.

In 1892, during the experiments on the Erie canal in the matter of propulsion of boats by electricity, there was a large gathering of electricians. Among those present was Nikola Tesla. The topic of long distance transmission was then uppermost. At that time Mr. Tesla said that it was practical to propel boats on the Erie canal, from Buffalo to Troy, by means of electricity generated at Niagara Falls; that it was perfectly feasible to transmit the current at a potential of 100,000 volts without sufficient loss to prevent its commercial use, the entire length of the canal. That was some years ago. To-day it would puzzle the most diligent inquirers to find a plant which safely and economically transmitted electricity anything approaching that distance with a pressure at the generating plant stepped up to 100,000 volts.

So far as can be learned, the current generated at Niagara Falls has not been transmitted further than to the city of Buffalo, a distance of twenty-eight miles, and the transmission line is only built for a pressure of 20,000 as the limit.

Now, with all due respect for Mr. Tesla (and he is respected and admired by everybody who is in any manner connected with the art) would it not be well to give an illustration of transmitting electricity 350 miles, (the length of the Erie canal from Buffalo to Albany) under an initial pressure of 100,000 volts, before asking us to believe that he can greatly increase this pressure, and transmit the current from Niagara to New Chwang or Manila, without wires?

Along in the years from 1892 to 1895, the electrical journals teemed with figures showing how electricity from Niagara could compete with cheap coal at New York; but it is understood that coal is still being used to generate steam and indirectly electricity, in the Greater City.

It is of course possible that Mr. Tesla has been misquoted; that the enormous scope of the power of his ascillator has

been increased by the imaginative newspaper reporter. As has been said, it would seem to be the part of wisdom for us to wait, before absorbing this aerial scheme in its immensity, until Mr. Tesla has made his diagrams known to the world.

#### MR. NICHOLL'S PAPER.

Considerable space in this month's Worker is devoted to publishing in full an interesting paper on the "Chloride Accumulator, read by Mr. Harry A. Nicholl, Superintendent of Power of the Rochester Railway Company, before the Rochester Academy of Science. It is the first time Mr. Nicholl's paper has been published in its entirety, and it is well worth study by all practical electricians. While the plant described is not comparatively very large, it has some novel features which Mr. Nicholl brings out very clearly. His description of the mechanical construction of the battery is very complete in detail, and is very instructive, while his explanation of the chemical action makes many points very clear.

The use of the booster as a regulator will be watched with interest, and the net economy of the use of the outfit in a plant run entirely by steam cannot fail to interest street railway men. When once fairly in operation the value of the plant will be clearly apparent, as it will show at the coal pile very quickly.

Mr. Nicholl's paper should be preserved as a matter of reference by every practical electrical worker. It contains a mass of information in detail which is not readily or conveniently accessible. The outfit represents the latest improvements in accumulator practice, and the clear manner in which all portions are described makes the paper of unusually practical as well as technical value.

MR. JAS. BURGESS, a member of Local 41, Buffalo, N. Y., has succeeded in forming a local of electrical workers in Toronto, Canada, and our brothers across the water are very desirous of having the Brotherhood made international. Let each local discuss this matter thoroughly and write articles to this paper, and exchange ideas on this very important step. There is only one way this can be done legally—by referendum vote. The matter was discussed at three different conventions and failed to go through each time there, for it would not do for the E. B. to offset the ruling of conventions. But our Brotherhood could be made international by referendum vote, or the locals in Canada could send delegates to our next convention. There are so many different opinions on this very important step that it should be made a special order of business, and thoroughly discussed by the members. Other labor organizations have extended the hand of

fellowship across the border and have profited by it. We should be broad in our ideas of unionism, and, remember, the man in Canada has the same at stake that we have, and should get the same protection. It would not do to have rival labor organizations; they would jeopardize each other's chances of success. But for us all to join in one body would be of mutual benefit to all concerned. We hope this will be thoroughly discussed in the next few months.

We have a number of able men in our ranks who, if they wish, could furnish some valuable information and suggestions. These members are distributed throughout the various local unions and seem to forget that the columns of the Electrical Worker are always open to discussion of any and all electrical questions, or any odd experiences or items of news that would be interesting reading to our members. We think a column of "Queries and Answers" would be interesting and instructive, and wish the brethren would commence throwing them at us. Also, please remember that, although each local has a press secretary, this does not debar any other member from communicating with us. On the contrary, we would be pleased to hear from all.

#### WHAT STOPPED THE CURRENT.

##### The Peculiar Seat of a Girl on the Telegraph Wire.

A little 13-year-old Pawnee county, Kan., miss, Bertha Leonard, has lately given the Western Union and Postal Telegraph Companies an unlimited amount of trouble in a most unique and peculiar way, says the Kansas City Times. Bertha's daily duty was to herd and watch a large drove of cattle, whose range was near the Western Union and Postal Telegraph lines.

For sometime past, at irregular intervals during almost every day, these lines absolutely failed to work, and the trouble seemed to be somewhere in the vicinity of where this girl ranged her father's cattle, but, try as the line repairers would, it could not be definitely located. Finally it was discovered that Bertha, in order to get a better view of the herd, had driven railroad spikes into a telegraph pole, so that she could climb it, and that she would, whenever she got weary watching the cattle from the ground, climb the pole, pull up a board by means of a cord, place it across the wires, seat herself on the board and spend an hour or two watching the herd from her uniquely improvised elevated station. Whenever the board happened to be damp or wet, and the frequent rains this year have kept the board wet most all the time, it destroyed the electric current and practically cut off all telegraph communication between Denver and Kansas City.

When discovered and informed of the damage she was doing to the business of the telegraph lines Bertha was greatly surprised, and was apparently utterly ignorant of the fact that her seat on the wires interfered in the slightest degree with the working of the lines.

## OUR LOCALS.

### Local Union No. 1.

St. Louis, Mo., Oct. 10, 1898.

Editor Electrical Worker:

Labor Day was more generally observed in St. Louis this year than ever before. Nearly all places of business closed and it was recognized as one of the leading holidays of the year. We had two large parades—the B. T. C. in the forenoon and the C. T. and L. U. in the afternoon. The electrical workers marched with the B. T. C. and attracted much attention, both on account of the number of men in line (400 striking linemen marched with No. 1) and the "float" which headed their column. The float was without doubt the finest ever seen in St. Louis, a city famous for floats. The float was 16 ft. long by 8 ft. wide; divided into two sections. The front section represented a complete electric light plant in operation, and the rear section a telephone exchange. Poles were placed at each corner of the float, extending 7 ft. above the roof, making the total height of the poles about 17 ft. Each pole had a 4-pin cross arm, on which were strung telephone and electric light circuits. The "station" contained a 5 H. P. gasoline engine, furnished by N. K. Fairbanks; storage batteries and a decorative arc lamp, furnished by the Manhattan Electric Co.; a marble switchboard, with all station instruments, furnished by C. F. Briner (this switchboard has since been installed in one of the large river boats); bells, annunciator and electric lt. brackets, furnished by the Frank Adam Elect. Co.; a 50-light dynamo, furnished by the Eclipse Elec. Co. The Imperial Electric Light and Power Co. furnished all material used in the construction and wiring of the float. The "exchange" contained a \$500.00 switchboard furnished by E. Rubel; also an artistic combination electrolier and ceiling fan, furnished by Van Wort Bros. The St. Louis Electrical Supply Co. and Wm. Murdock furnished supplies. In fact we had enough offered to build a dozen floats. No. 1 extends thanks to the "electrical fraternity" of St. Louis for the favors extended on Labor Day, and hope that the cordial relations existing between the union and the Exchange will long continue.

Judging by the amount of space used in the August Worker, "Electron" must have stepped on someone's corns. Our only apology is that people should not have corns.

The battle is lost. The greatest strike ever undertaken by a union of electrical workers has ended in defeat. No. 3 made a heroic fight, but was starved into submission. Four hundred as brave men as ever

faced an enemy had to give up a fight that should have ended in victory. Trusts, corporative power, and other enemies of organized labor can rejoice, and tighten the thumb-screws. They have whipped the linemen of St. Louis, who else can they not whip? Had No. 3 won, it would mean not only \$3.00 per day in St. Louis, but in time \$3.00 per day in every large city in the U. S. Did the E. B. and the electrical workers in other cities realize this? The general managers did, and there was a constant communication between the general managers of the different cities. They knew full well, that a victory for the men in St. Louis, would be followed by like demands and victories in other cities. They could afford to spend thousands of dollars to defeat the linemen of St. Louis.

Early in the fight Grand President J. H. Maloney came to St. Louis and did all that mortal could, to win the fight; but the sinews of war were lacking. The companies, aware of this, knew that it would only be a matter of time when the men would be forced to throw up the fight. Had the men received financial aid from the Brotherhood, instead of recording a humiliating defeat, we would have the pleasure of writing about one of the greatest victories organized labor had ever won. When the sixth week of the strike closed the tie-up was complete. The Laclede, the Missouri-Edison and the Kinloch did not have a man at work, and the Bell Telephone had only a few trouble men and one foreman who had not come out. Up to this time not a break had occurred in the ranks. But six weeks is a long time for 400 men to be without money and the companies knew their condition, for in this strike as in every strike, they know everything that occurs. This was the critical point of the strike. Had the \$400.00 asked for by Grand Pres. Maloney been forthcoming and the companies knew that the union was backed up by the National Brotherhood, and that the men could not be starved into submission, they would have given the \$3.00 within two days. The first break occurred at the Missouri-Edison early in the seventh week, when Jno. McGann, Dick Harris, L. Baldwin, Frank Kelly, Frank Maher, Joe Aber, Joe Edwards and Chas. Addleman went to work. The company immediately jumped into "print" with the statement that the strike was broken, and to carry the bluff still farther employed about 100 Thiel detectives, some of these were rigged out as linemen and put on the wagons. But the company could make no headway, and at the end of the seventh week would have compromised on \$2.75 per day. But while this proposition was being considered, the condition of the strikers became such that it was necessary to solicit aid from business men. The company knew that this

was the last stage in a strike, and at the beginning of the eighth week absolutely refused to treat with the union. Another break occurred and there was nothing left to do but to declare the strike off unconditionally, which was done at the end of the eighth week, and thus ended a strike which could have made the N. B. E. W. of A. something more than a name.

Several of our unions responded generously to the appeal of No. 3. No. 1, although its treasury was depleted on account of its own strike, gave \$142.50. No. 9 sent \$100.00. We are unable to give the amounts sent in by other unions this month, but a full statement will be published in the next issue.

At the request of No. 3 we send in the following list of "scabs," and trust that they will be posted in a conspicuous place in every meeting hall; also that the editor will keep the list standing in the Worker for several months. The list not only includes linemen, but also contains the names of troublemen, cablemen, groundmen, trimmers, inside telephone men and underground men, who did work outside of their regular duties, which was formerly done by linemen. An asterisk (\*) before a name indicates that the scab was a member of the union. We will have some comments to make on several names on this list next month; also on several features of the strike, which the length of this letter prevents us from making this month. Grand Pres. Maloney made a host of friends while in St. Louis, and although the strike was lost, all felt that he did his duty nobly, and both No. 3 and No. 1 extended him a hearty vote of thanks on the eve of his departure from the city.

No. 1 continues to flourish. We have scarcely had an idle man since our strike was settled, and during No. 3's strike our business agent was able to place all of their men (about 25) who could do inside wiring. The Imperial Elec. Lt. and Power Co. will turn on the "juice" about the 15th of this month. We will give a little "write up" of their plant and the system of distribution used, at some future time.

ELECTRON,

Press Secy. of No. 1.

SCABS.

MISSOURI-EDISON.

*Jno. McGann,	*Frank Kelly,
*L. Baldwin,	*Dick Harris,
*Chas. Addleman,	*Harry Murphy,
*Joe Edwards,	*Frank Maher,
*Joe Aber,	*Walter Baldwin,
Geo. McLaughlin,	Harry Swarthing,
Fred Schantz,	Tom Watts,
Jack McCune,	Jim Carr,
Bill Kelly,	Tony Burkle,
Lee Casavant,	Frank Burns,
Frank Widoe,	Tim Murphy,
Jas. Murphy,	Chas. Pipes,
Rube Smith,	Del. Scott.

BELL TELEPHONE.

Chas. Phillips,	Bill O'Dell,
Geo. Johnson (scabby)	Noah MacLamore,



Frank Gocus,	L. Hull,
*Mike Cunningham,	Jim Breen,
*Chas. Johnson,	Fred Obermiller,
Frank Haverstraw,	Bill Gillin,
Jack Carson,	Andy Gamble,
Ed. Warentine,	Al. Hayship,
Grant Frey,	John Hall,
Wm. McCloskey,	John Simons,
Bill Ogle,	John Eiker,
Bill Davidson,	David Davidson,
Jno. (Baldy) Hamble,	Wm. Ingstrom,
Jno. (Heckery) Darrah,	*Dick Lewis,
Henry Casey,	Perry Manion,
Wm. Taben,	Jno. Dare.

## KINLOCH TEL. CO.

Ed. Holman,	Frank Lewin,
Frank Turner,	Adolph Meyer,
Henry Hisserich,	A. Dock,
Wm. Stewart,	Ernest Dennison.

## Local Union No. 3.

St. Louis, Mo., Oct. 17, 1898.

Editor Electrical Worker:

The accompanying preamble and resolutions have been unanimously adopted by Electrical Workers' Union No. 3, of St. Louis, and I am instructed by said union to transmit the same to you and request that you take similar action.

The question of municipal ownership has become the foremost question in many of the great municipalities in the United States, and is universally demanded by all who desire to see municipal government wrested from the control of boodlers, corruptionists and tax dodgers, who now make municipal politics in all our great cities a synonym for all that is vicious and degrading.

Trusting that your organization will take favorable action in this important matter, I am,

Fraternally yours,  
GEO. A. MITCHELL,  
Secretary.

Whereas, The business of furnishing light to the people, the means of communication between citizens, and methods of transit in municipalities, such as telephones and street railways, are public functions, which ought to be owned, controlled and operated by the people collectively for the public convenience, public good and common benefit; and

Whereas, The problem of the public ownership of public utilities, is one intimately associated with, not only the property right and interests of the people, but with the preservation of their dearest rights and liberties; and

Whereas, The municipal ownership and operation of lighting and water plants and street railways has proven a great benefit to the citizens of those municipalities where it has been adopted, in securing more efficient service to the public, and higher wages for those employed in such public works; therefore,

Resolved, By N. B. of E. W. No. 3, of the City of Louis, that it favors the municipal ownership of the electric and gas-light plants, telephones and street-railway systems, and its members hereby pledge themselves to use all reasonable and proper means to bring about that end.

## Local Union No. 5.

Pittsburg, Pa., Nov. 7, 1898.

Editor Electrical Worker:

As this is my first attempt to act in the capacity of spokesman for Local No. 5, I trust I shall be able to tell in a plain way her workings, and hope the same may be of interest to the Brotherhood.

Well, the Knights Templar Conclave has come and gone and "Old Smokey City" has done herself proud in a record that will, with a few exceptions, be hard to duplicate. As there might have been an improvement in the combination of colors on the arch work, which, while very pretty, could have been more so by working out the designs (the crosses) in colored lamps. The Union came in for a liberal share of the honor, as the displays on the Masonic Temple, the Press and W. H. Keech were in charge of Bro. George M. Rudolph, our president, and other brothers. "The Leader" had a large cross and crown done in white and red lamps. This was in charge of Bro. Park. In the Park Office building Bro. Snyder exercised his cunning in the decorators art, and in the window of the Glasco Woolen Mills Bro. Albert Eldridge had a very neat design, a Maltese cross, with smaller designs in miniature lamps inside, and others which time and space prevent our giving at this time. There is a way some people of business have in gaining honor and name at the expense of others, and on one particular display for the Weyman Bros., which was two large American flags, 7x12 feet, on either side of a circle of seventy-five white lamps set at six-inch centers, and inside was the trade mark of a bony hand of a skeleton in frosted lamps coming from a sleeve in green lamps. In the fingers were held a pair of scales in yellow lamps; in the right side was a pipe in ruby lamps, and the left was a crown in same color. The flags were operated by two motors in the rear with commutatory switch. The design had in all 1,483 lamps. It appeared in the Electrical World that the Doubleday-Hill Electric Company had completed the same, but the work was done by two Union men at Union wages, and thereby hangs the tale; but enough of blow and fuss.

Our Union is in good running order, and she says the subject is labor and capital. As through this world I wend my way, With scant to eat and little pay, I often think of the lot of man, One to ride in a coach, the other to grind the bran.

And the one in the coach is a cruel man,  
And what of the other who ground the bran?

Is he honest and worthy of what he gets  
In the shop all day as he toiling sweats?  
Are his dreams as sweet as the other man?  
Find this out if you can.

It sure is this that added gold  
Is misery two-fold?

He lies awake for fear of the thief;  
The other one, poor, sleeps on with relief.  
But as the years they come and the years they go,

Nothing else will this one man know.  
But the poor man feels as he goes to rest  
That he's not a care, for indeed he is blest;  
But how in the end will the balances weigh,

When nature has resolved their frames to clay?

Which lived and enjoyed his life the best?  
Or which of the twain was the one most blest?

You'll find it the poor man,  
Or the one who ground the bran.  
And what of the Bible in words plain and true

That "Heaven's rich" number few.  
So don't you see; I think you can,  
That the happiest after all was the one who ground the bran.

Sincerely yours,

J. H. STOUFFER,  
Press Sec'y.

## Local Union No. 6.

San Francisco, Cal., Oct. 9, 1898.

Editor Electrical Worker:

Having been elected to fill the office of Press Secretary, it being left vacant by the departure of our worthy brother B. F. Collins, for Oregon, some weeks ago, I shall endeavor to discharge the duties of said office to the best of my ability, trusting that the charitable spirit which must inhabit some corner of the heart of the average electrical worker will cause them to receive this, my initial attempt, in the spirit in which it is written.

Our local has done some good work since its organization, and since our affiliation with the Building Trades Council of this city much has been accomplished. We have been instrumental in securing the appointment of a business agent, whose especial work it is to investigate all cases where union men have been wronged in any manner by contractors or employers, or have been made to suffer by the employment of non-union labor. This is a long step in the right direction, and the writer hopes, with all the members of our local, that within a short space of time we can number within our ranks all men for whom we have sufficient respect to ask to become members of our order.

If the members of the electrical fraternity (I do not mean the Brotherhood alone, but all electrical workers, inside and out) could only realize the power which is theirs, and which would enable them to control their own destinies, were it only properly wielded, what a "shaking up" there would be in some quarters of the globe, and how many worthy men would

receive their just deserts, instead of having to work for a mere pittance under men whose ignorance of their business makes them a laughing stock for the men they pretend to be superior to.

The time is coming, though, when the growing intelligence of the men who follow our business will enable them to ask for and receive the position in life which is due them, and by the firm and moderate assertion of their rights, command the respect which has been denied them thus far.

My attention was, only yesterday, called to a matter which, if not "nipped in the bud," bids fair to become a growing evil. A contractor of this city has been doing a great many jobs, and has lately been enabled to greatly underbid all competing contractors. When I found out how he could do this in these days of close competition, I was somewhat surprised. You have no doubt heard, brothers, of these (so-called) "Schools of Electricity," etc.; where for a small sum boys are taught "electrical engineering," and turned forth upon a long-suffering world in which they can command the princely salary of about \$6 per week (or less). This contractor evidently knew how to turn this to his own advantage, and believing that he had missed his vocation of professor, he kindly volunteered to allow as many of the young students as wished to work for him "roughing in" and "finishing" jobs, providing they paid their own car fare and did not demand any pay for their labor, the vast amount of experience gained being, in his eyes, ample compensation for their toil.

My brother members of No. 6 are not aware of this state of affairs as yet, but will be after Wednesday next, when we meet, for, joking aside, each one of these boys keeps a man out of work, and work in our business is very dull just now, and only yesterday I exchanged words with two men—good men, and both married, too, who were really rendered desperate by their failure to secure work. Again, such a contractor as this discourages legitimate concern which, when they have shaved their bids as close as they dare, find they are still too high, get disgusted and lay off their men, thus throwing more out of work.

In my next letter I will inform you what action our local has taken and what result said action had. This man has set the example, and others will not be slow to follow; they never are, when the cutting down of a workingman's chance to live is concerned.

Our members are nearly all working, although some are not working full time. The writer and Bro. Hilton have been busy for some time past rewiring the Baldwin Theatre in this city and putting in new dimmers, switchboard, etc. We contemplate giving a smoker in the near future to revive outside interest in the N. B., the

success of which is pre-assured, arrangements having been placed in the hands of such veteran entertainers as Bros. Al. Whitfield and Jack Cameron.

Well, I suppose I have already consumed more than the allotted amount of space, so with many wishes for the success of all brothers, whom I hope to some day see in the prosperity they deserve, I remain,

Fraternally,

WM. A. BARSTOW,  
Press Secretary.

#### Local Union No. 8.

Toledo, O., Oct. 25, 1898.

Editor Electrical Worker:

Well, brothers, I will have to get in the game and donate a few lines this month for the Worker. Will start the game with a home run. It is something unusual for Toledo to have more work than we can handle, but it is a fact; cannot get enough men for the contractors—journeymen, I should say. Hope all our unions can say the same. I will also add, our business is very fluctuating; the rush may last a couple of months, or it may last only one month. Here's hoping for the best. We expect to have enough work for all our locals put together when we commence to wire for the Centennial. What? you have not heard about it. Well, I will tell you in a very few lines. Toledo was selected as the proper place to hold the Ohio Centennial. (I guess that will hold us for awhile.) I will also add that Dewey was selected to open the Centennial. It remains to be seen whether he will officiate or not. All this happens in 1903. It is a few years ahead of time to write about it, but we have a bird's-eye view of work at some future date.

As my magnetic pull with the pen is very strong, I will have to pull it from the paper and draw to a close.

Yours fraternally,

J. J. DUCK,  
Press Secretary.

#### Local Union No. 9.

Chicago, Nov. 7, 1898.

Editor Electrical Worker:

No. 9 is still on earth and has got a kick to register. In the last issue of our Worker is an article headed "Majority Rule." It was quite a mystery who the article referred to until the party referred to gave an explanation. The mystery of it now is why the writer of it was allowed space in our official journal to air his personal grievances. News must be very scarce when there is nothing to write about except the conduct of the officers of the Brotherhood and in the official organ of the Brotherhood at that. Our constitution contains rules to govern the members of the National Brotherhood and provides a penalty for any violation of them, so if any

member of the Brotherhood has violated any article or section of the constitution, Article xxix, Section 1, will tell very plainly what to do, and the constitution applies to all, from the highest officer to the most humble member. The writer of this article says, "It is not the purpose to open any old sores." We must infer from that that there has been trouble before between members of the E. B. No. 9 is in possession of a letter written by a member of the E. B. in which he severely criticizes actions of another member of the E. B. When No. 9 appointed and sent a delegate to the last national convention he was sent to help appoint a set of officers that would obey the constitution and use every effort within their power to better the condition of the Brotherhood, and not to quarrel and oppose each other to the detriment of the Brotherhood, and we still hope his time was well spent. If personalities must be discussed, let it be outside of the lodge halls and the Worker, and better still do not discuss them at all, for the average member of a labor organization has enough trouble getting along with their employers without quarreling amongst themselves, and I do not think such incidents as the past two will help to strengthen the Brotherhood or increase the fraternal feeling that now exists among the members.

Well, that much talked of dance of ours was held last Saturday evening, and was a success in every respect, thanks to the good management of the arrangement committee. We had everything to drink and eat that could be desired and did not leave until the wee small hours in the morning, and everybody went home well satisfied.

Bro. James Collins is on the sick list again, but as he is rapidly recovering we hope to see him around soon. Bro. John Conger is out of the hospital but it will be some time before he will be able to work again. Bro. Peterson was badly hurt last week by being thrown from the top of a tower car.

J. E. POLING,  
Press Secretary.

#### Local Union No. 10.

Indianapolis, Ind., Nov. 8, 1898.

Editor Electrical Worker:

Here are a few lines from old No. 10. Because we have missed the last two numbers is no reason that we have quit business and thrown away our tools. No, sir, and if you could drop in some Monday evening you would wonder why so many are coming into our ranks. Allow me to say we have taken on new life and are hustling, and at the present rate it cannot be long before the trade of Indianapolis and surrounding towns will be in line with our liners and electrical workers. Our charter has been reopened, and the way our goat

is kept at work would make a fellow smile and wonder if there was no end to the procession. All classes of the trade in the city are now represented at our meetings, and applications are coming in at a very encouraging rate. It is our aim to extend an invitation to all of the trade in the city, and we believe that we will be able to place No. 10 among the first of the local unions. Two weeks ago we had the pleasure of having our Grand President with us, and were favored by a very helpful and encouraging address from him. We had an open meeting and were rewarded by a large crowd that listened to some very able speeches. The doors will be open every other meeting night. Monday evening, November 14th, will be an open meeting. All are invited to these meetings. We will have able and interesting speakers on each occasion. Come!

In conclusion let me add that one of, or perhaps "the" grandest enterprise that has come to this city since we have known it is the new Telephone Company. The management of the company seems to be perfect. Their one aim and object seems to be to employ the best of labor and have the very best work done possible, and in that way erect a complete and model telephone exchange. They are succeeding, and it will not be a great many months before this will be a successful and extensive exchange, both local and long distance, and we, to a man, join in wishing them success beyond all their expectations.

should this reach you in time it will be enough for the next issue of the Worker, and I hope to be a regular correspondent in the future.

Respectfully yours,  
E. E. BAUMANN,  
Press Sec.

#### Local Union No. 17.

Detroit, Mich., Nov. 6, 1898.

Editor Electrical Worker:

As the night is dark and chilly, and the dreary drizzle of the rain on the roof warns me that the street corner would not be a cheery place, I will stay in and jot down a few items for Editor Sherman to publish.

Well, brothers mine, I hardly know what to write about this month as nothing of especial importance has happened, with the exception of the collapse of the new Wonderland building which you have undoubtedly all read about in the papers. If it had happened a few days later, after the wiring of the building had commenced, No. 17 would probably have had several members killed, for it was to be a strictly union wiring job. There were twelve mechanics of other trades killed.

We received a communication last meeting night asking for some union linemen; but we could not furnish them, for I am happy to state that every man is working

here that carries the Electrical Workers, card, that badge of decent wages and decent treatment, according to the American standard.

Bro. Cassin has returned from Chicago, where he spent a few days. He says that No. 9 has the grandest set of union men he ever met, and that he was used like a prince. He wishes me to thank them, through the Journal, for their truly fraternal treatment.

We are going to give a ball and grand electrical display soon. The committee says it will be the greatest hit of the season. I, myself, was more in favor of giving a good smoker among ourselves; in fact I got up and made a talk to that effect, but the other members arose and sat on me unanimously, so the ball "goes." I hope it will be a success. Watch for the date, and come and join in the festivities.

The new wiring ordinance gotten up by No. 17 passed the common council, was signed by the mayor, and is now a law, and a good one too. There was strong opposition to it from the lighting plant people who claimed the old ordinance was good enough, but when Bro. Thomas Forbes and George Brown pointed out where the old law had holes in it big enough to drive a brewery wagon through, why the new law was passed with a whoop.

Bro. Edward Andrews went south to help superintend the installing of the new telephone exchange in New Orleans; but when he got there they had a shot gun quarantine around the city, and he could not get in. He had to come north again but he said he was going back as soon as the yellow fever was stamped out. We hope No. 4 will use him right, for he is a brother we esteem very highly.

The Detroit Telephone Co., with whom we have a union agreement, report business as flourishing. Bro. Frank Hughes is superintendent. He is a practical man, having worked at the business for years. He is not like some of these fellows who come out of college and put on eye-glasses and try to manage a plant out of books. They can conjugate verbs, decline nouns (seldom decline drinks) and they can talk theory till the cows come home; but when it comes to doing something, the practical man is wanted.

There is a certain pompous lighting commissioner in Detroit, who, I understand, offered the editor of the Sentinel, the labor paper of our city, twenty-five dollars to deny something that No. 17 had given out. How true it is I don't know, but I do know that Editor Samuel Marcus is a man that cannot be bought. Now this same commissioner has tried to tell No. 17 its business before. During the strike he was opposed to us and he seems to know what we want better than we do ourselves. What

we really want, is, a good husky man who will give bonds to kick him clear over into Posey county, Indiana, the next time he opens his big "bazoo" about organized labor. He will probably be shown this letter, but that "cuts no frozen water" with me.

Everything is progressing finely; No. 17 has a corner lot on easy street. Our membership is increasing steadily, old prejudices are giving way to organization's irresistible march. Unionism has a better show than in times past I think. Look at Gov. Tanner's stand for the union miners for instance. Of course we all think of good times in years past, but you know the heart always casts a glamour over days that are dead, and I maintain that unionism never had more power, or union men more respect than at present.

Brothers, I will close by saying, stand up for your rights, not only as union men, but also as citizens of this country. Every right we have to-day was fought for. Every privilege you and I enjoy, represents our father's blood and our mother's tears. Let us be worthy sons of our sires.

DAN E. ELLSWORTH,  
Press Secretary.

#### Local Union No. 26.

Washington, D. C., Nov. 4, 1898.

Editor Electrical Worker:

Having been elected P. S. last meeting, I will endeavor to help fill the columns of the Worker.

Work here at present is favorable and has been for some time.

Now a few lines in regard to Local 26. When the undersigned came to Washington about one year ago, 26 was in a flourishing condition, weekly meetings, good attendance, every man a union man, every shop a union shop. But, alas! How the mighty are fallen! Local 26 has bit the dust. Few union men, no union shops, few meetings, no attendance, plenty of bills to pay, nothing to pay with! Why should all these things happen? Because the boys seem to have lost all interest in endeavoring to better their condition. The few who manage to hold 26 together oftentimes hear repeated by some of her old time ardent workers, that the union is no good, what's the use of paying 60 cents a month for nothing, why don't you do this and why don't you do that, and I often wonder why they don't come around and do a little themselves. Of course the world is full of such people. I think the only method to regain them is by treating them with due respect as there is nothing to gain by scorn. Well I hope before the issue of the next Worker that all the old-timers will be in line and once more have their shoulders to the wheel, for as a severe winter has been predicted, naturally the wheel will not turn as easily as of yore.

O'CONNELL,  
Press Secretary.

**Local Union No. 27.**

Baltimore, Md., Nov. 4, 1898.

Editor Electrical Worker:

A few weeks ago the Ninth U. S. Cavalry passed through this city over the B. & O. R. R. When the train stopped for dinner at Camden Station Col. McGregor, the commander of the regiment, ordered a detail of four troopers to be placed on the engine to prevent it from being moved, while his lordship, the colonel, proceeded leisurely to the depot restaurant for his dinner.

The officers of the road appealed to him to allow them to move the train off the main track as it blocked the entrance to the Belt Line Tunnel (through which all traffic between Philadelphia and Washington must pass) and practically made a single track road of the entire system, but he waived them aside in disdain and would not listen to them. One hour and fifteen minutes after, his lordship proceeded leisurely to board his train and then graciously allowed them to move out of the way. Such an exhibition of despotic authority is hard to realize but Col. McGregor has the distinction of being the only man that ever got the best of the B. & O. R. R., and the citizens of the state should present him with an engrossed set of resolutions and a gold mounted sword.

Seriously speaking, Mr. Editor, suppose this had been done by some poor devils who were on a strike against starvation wages, what a howl would have gone up from one end of the country to the other? How the capitalistic press would have denounced them as anarchists, as conspirators whose sole aim was the destruction of society. The militia would have been called out and those men, if not shot down, would have been thrown in prison while all the resources of the government and the courts would have been placed at the service of the railroad company to crush them. Now if an army officer with a regiment of soldiers at his back acts this way towards a big corporation, what treatment would a workingman receive who happened to cross their path.

This is an illustration of what we can expect when we get that large standing army that everybody seems to be crying for. And then take the case of two lieutenants with the army in Honolulu who, while on a drunken frolic, placed the town under martial law, chased everybody off the streets and terrorized the people for several hours. The officers in question were afterwards tried by court martial, but as one of them was a son of the general in command of the troops there, they were of course acquitted of the charge.

Another illustration of an officer of the quartermaster's department in Porto Rico the other day who, when the men employed in unloading vessels refused to

work, because their wages had been cut from \$1 to 75 cents per day, called out the troops, rounded up the laborers like a herd of cattle, shot and stabbed those who attempted to escape and made them all go to work at the point of the bayonet. If such things are allowed in our new possessions, how long will it be before the same game is tried right here at home?

For years all the great corporations and trusts, in their endeavors to keep down the working classes, have been preaching up the necessity of having a large standing army. The craze for distant possessions which seems to have taken hold of this government to the exclusion of all common sense and a total disregard of the honesty of purpose of the American people, give these same corporations the opportunity they have been looking for for years, the chance of having a large standing army, knowing that the inhabitants of those islands cannot be kept in subjection unless there is a powerful military force on hand at all times. It is also a part of the scheme of these same people to place the entire national guard under the orders of the government, as an army officer expressed himself the other day, "the national guard must not again be placed at the disposal of men like Altgeld or Tanner."

It is time for the laboring people of this country to call a halt on the well laid plans of the bond holders and money classes, for just as sure as we have a large standing army placed under the orders of some despot or tool of the corporations in Washington, just so sure will the rights and liberties of the people be taken from them one by one and drumhead courts martial take the place of the civil law. Owing to the gross incompetency and criminal negligence of a large majority of the political favorites who have been given commissions in the army, the people will not be as willing to enlist in the service in the future as they have been in the past. It will be but a step then to a general conscript law, such as they have in Russia, Germany, France, etc. Under these conditions where will our ancient liberties be, of which we have boasted for a hundred years and more? What will become of our labor unions which, with all their faults, have done so much for the working people of this country? These questions will have to be met and solved by the people and by them alone and as they sow the wind they will certainly reap the whirlwind.

F. H. RUSSELL,  
Press Secretary.

**Local Union No. 30.**

Cincinnati, O., Nov. 7, 1898.

Editor Electrical Worker:

I thought perhaps a few lines to the Worker from this Sherman and Cleveland-

ized locality might interest our brothers in other localities where the Marcus A. Hanna and Wm. McKinley prosperity has struck them a little stronger than it did us here in Cincinnati. We still live in hopes, but I am satisfied that we will die in despair if we depend upon and wait for the English gold system to bring it here.

All the members of Local No. 30 are working at the present writing. There is no telling how long it will continue in this rut. There is one thing I wish to call the attention of the members of Local No. 30 to, and that is their indifference in attending the meetings, and especially the inside men, that is, what few we have got of them, who are especially benefited above the outside men (linemen) by having representative in the Building Trades Council. If you remember, we got into that organization by the skin of our teeth. Take my advice and attend the meetings of the Brotherhood, so that we can give the boys that represent Local No. 30 in the Building Trades Council some encouragement to hold that berth. You know when we lose that berth, we lose a big hold for the inside men. Of course it isn't doing the boys much good at present, but will in the future. If you don't do better than you have in the past, Local No. 30 will have to hand up its charter and I know that there will be a few brothers who will go elsewhere to pay their dues. Life is too short to be fretted away in behalf of people who are so indifferent to their own interests.

Now I hope the brothers will take a little more interest in attending their meetings hereafter and encourage the members who have worked so faithfully in their behalf.

WHISKERS.

**Local Union No. 35.**

Boston, Mass., Nov. 7, 1898.

Editor Electrical Worker:

Local 35 holds interesting meetings every Wednesday evening and has an ever increasing membership. The Lord Elect. Co. signed our contract a few weeks ago and almost all the men in their employ went into our local. We hope the other electrical houses here will fall in line. They will have to come to it in time, as things are coming our way. Meetings last some evenings until 12 o'clock and after, and business seems of such importance that in time we will have to have two meetings per week. I notice lately there are a few of the old timers not attending regularly. There is no need of mentioning names. Those who read the Worker and do not attend can take it to themselves. Once in a while they come around and hold us back in transacting our business in regular form, appealing from the decision of our old pal, Mike, and they ought to quit. We all know he does the best he

can for the interest of Local 35, but all members in good standing have that authority, while Hoyle states no others can mix in while an appeal is called for. I received a few letters from brothers of different locals out west, applying for work in Boston. Well, there are lots of reports from our members, stating where men are wanted, but no steady work, so I would not advise any brothers to come east looking for work, although at times there are some good jobs. We received an application from Supl. Cottle, of Construction Dept., city of Boston, wanting a first-class man. We recommended Bro. Buckley. Haven't heard yet whether he got there. He was employed there before. Say Cottle, send for some more. There was a vacancy in the fire alarm department, and we appointed a committee to wait on the Commissioner, Russell. They reported that he will write Local 35 when he wishes to employ an electrical worker, so we are waiting to hear from him. Several plants are going in at suburban towns and also an electric railway. We can't complain about work here. Next meeting there will be talk of getting together and arranging to have our annual ball, which we take great interest in, especially for the pleasure, not to say anything about the financial part. Our treasurer, Bro. Sheahan, has been on the sick list, but is reported to be O. K. after a few weeks of absence. Everything else going all right.

T. R. MELVILLE,  
Press Secretary.

### Local Union No. 37.

Hartford, Conn., Nov. 10, 1898.

Editor Electrical Worker:

November 9th has been here and departed, and No. 37's chief annual dance and display is a thing of the past. On that evening the members assembled, with their wives, sweethearts and friends, to participate in the celebration.

Our electrical display was simply immense. The lights were all colored red, white and blue. For our main attractions we had an electrical fountain, the design of our worthy Vice-president Darmstaedt. The fountain was a reproduction of the one which attracted so much attention at the World's Fair, called the "Sheaf of Wheat." We also had a large star inscribed in a circle about seven feet in diameter. There were 180 lights in the star, and it was hung in place of a large chandelier in the center of the hall. Almost the first thing to strike the eye upon entering the ball room was a large sign bidding all "Welcome." Opposite this and suspended over the stage was the emblem of our National Brotherhood. On each side of the fountain was placed on an easel a star with about fifty lamps in each. Over this and suspended from the curtain

border were the letters N. B. E. W. On each side of the "Welcome" sign was placed an anchor and a star. Directly over the "Welcome" was a small pole and cross-arm draped with bunting. On top of the pole was perched an eagle holding an incandescent lamp in his beak. The success of the ball is due largely to the efforts of Bro. Darmstaedt and his assistants on the display committee.

After an enjoyable concert the grand march was formed. President F. H. Roberts, with Miss Lane, led the march, followed by F. W. Darmstaedt and wife, Wm. H. Crawley and Miss Putnam, Wm. B. Maloy and Miss Tryon, M. P. Sullivan and wife and about two hundred other couples. The grand march was one of the most interesting events of the evening. After a promenade around the hall the letters N. B. E. W. were formed, and you can imagine how pretty it looked.

We wish to extend our thanks to all who assisted to make the dance a success. Hoping that we will all be together for our next, and hoping to see more visiting brothers on that occasion, I'll close my weary eyes.

W. B. MALOY,  
R. S.

### Local Union No. 38.

Cleveland, O., Nov. 8, 1898.

Editor Electrical Worker:

The time has arrived for another letter from No. 38. The past month has been a red hot one. We have increased our circuit fifteen new lights this month, and the writer holds in his possession two \$10.00 applications. The faise went into effect on Nov. 1st. The members are all taking a good deal of interest in the work at present.

The linemen have started out in good shape with the Home Telephone Co. The job is "no card, no work." But the new arrival has the choice of coming to the front and paying his \$10.00. If he does not, well, Mr. Editor, he has to pass on to some other job. Our brothers who have come from Nos. 56, 10 and 3 have all clear cards. The old timer, when he comes along for a job, generally finds things pretty good after he has shown his card amongst the boys. So all travelers coming this way be prepared to show your traveling card so there will be no hard feelings toward Local No. 38 and its members.

Bro. Sam Harris has returned from Hamilton, Ohio, where he has had charge of a street car job. Bros. Harris, Gilmore, Boswell, Stevens, who also had out gangs on the same job, came back also. The general outlook for linework this winter is very good.

At present all the wire fixers are working, that is, all our members who follow the outside branch of the business. The

inside men have quite a little work on at present. They are all doing something. The fall trade is picking up. The trade for the past month has been fair with them. They have had no big jobs this summer of any account. They look for a good winter and all prospects at present indicate that trade will be good. The shop men in the Walker Co. employ state that things are fair with them. They are all working at present. They never know what it is to lose any time. They work all night and day at times and then they are afraid to come over town and attend our meetings. But now if a member fails to attend one meeting in a month he is fined \$1.00. We excuse him on these conditions: "Out of town, sickness or working nights." The new rule has a good effect on them.

The members of Local No. 80 gave a successful card party on the 29th of last month. There were about twenty members from Local No. 38 present. The members of Local No. 80 are good entertainers and the visiting brothers from No. 38 speak highly of the committee on arrangements.

The press secretary of Local No. 80 has not sent any letters to the Worker, but I was told that they would contribute one this month.

Saw a notice in last month's Worker that Bro. Chas. E. Taylor, of Local 41, Buffalo, received injuries while at work, of a painful nature. Bro. Taylor and myself have came up the pike together on different jobs. I hope the injuries he received are not as serious as was reported. Let all brothers be on the lookout for the bursting of an incandescent lamp, as they might lose their eyesight by the bursting of one.

The time for our annual dance has arrived. Will give detailed account in my next letter.

Well, Mr. Editor, some of our radical men have got lost. They all disappeared. We can not find them. They work in strictly union shops, but they can not find time to come to the meetings and pay their dues until they get a hot letter from our financial secretary. Mr. Editor, there is where they show their failing. In fact, they should keep in the front more than they do. But they always have the excuse that they are busy.

Would like to see a few more letters from different locals in the Worker. Let us have some news. Brothers, look at the last quarterly report from headquarters. The report is grand. We made a good selection in our Grand Secretary. Our receipts and cash on hand has increased over five times the former amount. Now, brothers, take a hand and boom your local, get in some new timber and let the sister unions know that you are of some account,

and rank up with the large organizations. There is no reason why the Brotherhood should not double its membership this coming year. The way No. 38 is growing she will soon reach the 200 mark. Let others try and stir the people in their towns up. Get out amongst the fellow electrical workers and get them in line, and just as soon as you can, get the majority of your trade organized. Then you can go to the front for an increase in wages. There is no reason why an electrical worker should not receive the highest wages paid. Do they? No; the reason is this, they have not realized the condition of things and have not stood together. But I hope they will realize the fact before long.

GEO. H. GLEASON,  
Press Secretary.

#### Local Union No. 40.

St. Joseph, Mo., Nov. 7, 1898.

Editor Electrical Worker.

As the time has rolled around for the monthly report for the Worker, the P. S. could give a few stray members a hard rub, but as he is not in fighting trim for this issue will have to lay it over till the next.

The Hanamo Telephone Co. has asked the city council for right of way through this city; its lines extend from points in northwest Missouri, and it is trying to reach the Stock Yards. Its present terminus is with the Citizen's Tel. Co. The Street Railway Co. is putting a new steel roof over its power house and, when finished, the building will be fire proof. Other extensive improvements on their lines and tracks keep the brothers employed there on the jump most of the time.

Ex-Bro. Smith was misquoted in the October Worker, for in looking up past records we find he received but \$10 sick benefits, and stand corrected in this regard. Heretofore the ex-brother was one of our worthy members in good standing, and I don't see why he should object to paying his little mite of monthly dues towards organized labor, which is a benefit to any laboring man, even if there is no sick benefits, for he reaps the same benefits as the rest of the brothers who pay dues to keep the union in existence. There never was a case where a member in need or his family in want that the brothers of No. 40 didn't contribute liberally and always will do so.

Ex-Bro. Snodgrass paid us a visit and stated he was ready for adjustment and will be one of the repaired lights of the circuit.

We had some brothers visit us from Omaha and Des Moines locals, now with the Postal Telegraph Co., last meeting night. The way they made one of their gang who was initiated ride his royal nibs was a precaution. We have three more members

from the same gang for initiation and hope the brothers will be on hand to give us a lift when they present themselves.

Bro. Gorton, engineer at the City Electric Light plant, had the misfortune to lose his little son Glen, a promising lad of 4 years, who died October 17th. The Bro. has our condolence and sympathy.

All brothers should remember that the boycott is still on the popular Crawford theater and should not disgrace themselves by passing through its doors. Also remember to attend meetings every Friday night. Bro. Mottor, our delegate to the labor council, who is on the legislative committee of that body was pouring the hot stuff into them at one of their meetings, and is the right man in that capacity. Nothing like remembering the enemies of labor on the day of the battle of ballots. Its the workingman's only redress.

"76,"  
Press Secretary.

#### Local Union No. 44.

Rochester, Nov. 8, 1898.

Editor Electrical Worker:

It has been some time since our local was headed from. Bro. Graham resigned, I was elected in his place, and I forgot to send a letter last month, but I hope the brothers will overlook it this time, for I will try and make up in the future.

Well, brothers, I am glad to say that we all have been quite busy the last two months, and I hope the brothers will have lots of work all winter.

Local Union 44 will hold their annual ball on November 21st, and we are all busy with our electrical display, which I hope will be second to none ever seen in Rochester.

We had one of our brothers in St. Mary's hospital with a broken limb, and I tell you, brothers, it is a sad thing to be compelled to stay in bed. I hope the brothers will bear in mind if one of our brothers should have the misfortune to be sick to pay him a visit every chance you get, for it will be like a ray of sunshine on a cloudy day, and I wish to impress upon the brothers' mind their financial responsibilities. Now, brothers, you will bear me out when I say that your object in joining the N. B. E. W. was for the benefits which you receive, and how can you expect any benefits if you don't keep up your financial part? In my opinion members ought to pay their dues in advance instead of being two or three months in arrears, for it costs no more at the end of the year. It is bad business management to neglect your dues, and hope the brothers will bear in mind and pay them promptly at the end of each month. It is for your wife's and children's benefit to do so.

I will close with best wishes to all.

J. L. GUERINOT.

Press Sec.

#### Local Union No. 46.

Lowell, Mass., Oct. 28.

Editor Electrical Worker:

Another month has gone and it is time to report to the Worker. Well, all our boys are working; as Bro. Murphy says, when he is working everybody is working. Inside work has improved somewhat, but it will not last long, for there is not much building going on here. Outside work is going on in the same old rut; the different companies are getting along with as little help as possible. Our inside workers are going to make a move to better their condition, which I expect will come out favorable, as to all accounts they are going about it the right way.

Well, I must say No. 46 is having her own troubles. There are a class of men in this quarter you could not unionize under any circumstances; these are the fellows who want to stand in with the "boss," and who will carry tales concerning their fellow-workers and try to promote their own selfish interests by tearing down the character of their fellow-workmen. They think by carrying to their employers the alleged wrong-doings of someone they are elevating themselves in the eyes of the former, and will be rewarded by promotion for their "fidelity" to them. While the bosses have nothing but contempt for these traitors, they often encourage this sort of treachery, and the poor deluded dupe goes on cutting the throats of his fellow-workmen, little dreaming that he will reach the end of his own rope some time and hang himself. Such men are held in contempt both by employer and employee. A man who can not be true to his fellow-workmen can not long be loyal to his employer, and his employer knows it as well as anyone; therefore he is about the first one to be dropped from the rolls. Now, it takes years to perfect a good organization, therefore it is the duty of every worker to keep steadily on. Every cent spent towards your union goes to elevate the lives of those you must leave behind you some day. I never regretted for not having a card as I did some six years ago when I was on the road in Dakota. I was in a side-door Pullman with three tinworkers. They all showed their cards, while I hit the ground and had to make the best of it on the trucks.

The electrical workers are getting to look like coal shovelers; they don't get time to wash up once a week, and if things keep on a few years more coal shoveling will be the best job of the two.

Two of our brothers returned home with the Sixth Regiment last night, from Porto Rico. Bro. Patterson, who joined Captain Clark's Signal Corps, in Boston, is enjoying a 60-days' furlough. We have a committee out preparing a reception and smoke-talk for our returned brothers and soldiers.

Fraternally yours,

J. BARRETT,  
Press Sec'y.



**Local Union No. 56.**

Erie, Pa., Nov. 5, 1898.

Editor Electrical Worker:

Oh, I am so glad it is time to transfer some more of my intelligence to our valuable paper. I am a little tired this evening, as I have been climbing some of those good hard chestnut poles to-day and as I took off my weapons when I quit work I wished that I never would see any more chestnut poles or anything like them. But wishing did no good, for the first thing I saw when I got home was a quart of chestnuts for my supper. But I ate them all as I was afraid somebody might plant them and raise some more chestnut poles.

Brother Maloy, of No. 31, wants to have somebody prove that two equals one. We have got one that will equal six and he isn't a year old yet. But he is all right and wants to join 56.

Oh yes, the wire fixers are all working. Bros. Hart and Hick are still fixing wires at Warren, Pa. The Mutual Phone Company have got the right of way trouble settled and are going to complete their line from Erie to Grand.

Waterford, Pa., a town of about 500 folks is putting in an electric light plant. They expect to have 14 street arc lamps and over 300 incandescents. Bros. Kistner and Miller went down and helped to set the sticks.

Fifty-six is very glad to learn that Bro. ——— has got a job in a good union town and sees the need of a card. We hope he will always remember this and not forget his dues until it becomes a case of "have to."

It isn't a very good idea to think that a good job is a life time pension. The best of summers fall and seek a warm place for winter.

The weather here is absorbing some moisture and it makes the country roads a little bad. I was out the other day with a two-horse power rig and the resistance of the roads was so heavy that I had to rewind my horse power about every 16 feet, and at last I had to cut one horse power out and jump to the fields to get home. I don't expect any more trouble of this kind as I understand that the thermometer has an agreement with the coal yard to go down and the coal is going up. If such is the case, it will freeze the resistance out of the roads. No. 56 is going to give a grand ball, including a cake walk, Nov. 9, and we expect a hot time. Well, I guess I will have to pull the plugs on this and throw the circuit open until next month, as I have to write to the New York Sun and Cincinnati Enquirer before the dance.

Fraternally yours,

L. E. C.

Press Secretary.

**Local Union No. 60.**

San Antonio, Tex., Nov. 3, '98.

Editor Electrical Worker:

There are about four chances to one that the S. A. St. Ry. Co. will have another strike on hand very soon, for the "poor worm" (motormen and conductors) has about concluded to turn on the foot that crushed it.

The St. Ry. employees of this city have just reorganized themselves and have sent to the Grand Lodge for a charter, with about seventy-five members enrolled on the list. May their efforts be crowned with success is the earnest prayer of all organized labor in S. A.

The car men in S. A. have been working 18 and 12 hours per day for \$1.50 and \$1.25 ever since the electric street railway system has been installed here; they have had three strikes before, but Pres. W. H. Weiss has always succeeded in breaking up their organization. We hope that with the assistance of the organized labor of S. A. that they will be able to hold together this time. They have all to win and nothing to lose, so if the strike does go against them they are out nothing but the poorest kind of a job. The commonest laborer around town receives at least \$1.25 per day, so you see the boys do not care if they do lose their jobs, as some of them would be better off, anyway.

Work here in S. A. is gradually decreasing, and it keeps a number of the boys hustling around to make ends meet, myself among the number.

The girls at the Maverick Clark Printing Co. say that "something fell down the elevator shaft;" the something spoken of was Bro. Chub, Talcott, who fell one story without receiving an injury.

Bro. "Red" Hendricks has been transferred to the position of line repairer on the west end of the S. P. Ry. Stay with it, Bill, for it is a good thing.

No. 60 had one of their famous "smokers" last Saturday; all present had a good time and enjoyed the entertainment.

The boys would like to know if Connolly intends to become a union man?

F. W., Press Sec'y.

**Local Union No. 68.**

Denver, Col., Nov. 3, 1898.

Editor Electrical Worker:

This being my first attempt to inform the readers of the Electrical Worker of the times in Denver and the progress of No. 68, I can not give a great deal of information, as I transferred here only a short time ago from No. 22, Omaha. Previous to coming to Denver was in Philadelphia for 14 months and to my regret there was no local there. Philadelphia can support two locals and we should have all the electrical workers there in our Grand Lodge.

I understand No. 68 has not contributed any news to the Worker for some time.

I can say No. 68 is a wide-a-woke and prosperous local, we have added a number of new lights to our circuit lately. We have also raised our initiation fee to \$10 and added one light up to this writing. There is no reason why No. 68 should not be one of the most prosperous locals in the west, as all the present members are wiremen, contractors and apprentices. There are a number of linemen who do not belong. Should they and the trimmers come in, it would increase our membership greatly. At present we have an honorary membership of five and an apprenticeship of five. There is the best of prospects for No. 68.

Work has been more prosperous here this summer than it has been for some time. The Tramway Company has been replacing its old rails with new 72-pound rails for the past year.

The Cable Company has been trying to get a franchise to set poles and operate their lines by electricity, but as yet they have been unable to get one. I think they may get it next year.

The Denver Dry Goods Company has enlarged its store and put in a new isolated plant of 2-60 K. W. and 1-75 K. W. general electric 125 volt machines run by direct connected engines made by the Denver Engineering Company. The dynamos and five panel G. E. switch board was also set up by the Denver Engineering Company. The dynamo room is very nice. There is a large plate glass at the elevators, forming a partition which enables every one going into the basement to see the plant.

The building has been rewired throughout for 125 A. B. arc lamps, between 600 and 800 incandescents, a number of pressing irons and a 30 P motor for the Lamson cash system.

Daniels & Fischer, a wholesale and retail dry goods firm, have made some extensive alterations and put in a new isolated plant of 2.50 K. W. and 135 K. W., 110 volts Sumner & Holske machines, run by direct connected engines, made by Denver Engineering Company. The machine and four panel switch board was set up by Denver Engineering Company. This building has also been rewired throughout for 215 G. E. arc lamps and about 1,500 incandescents. The two operations mentioned and numerous other ones have given all the members work for the past three months. The two large operations mentioned are about completed.

No. 68 has changed its meeting place from 1712 Curtis street to 1731 Arapahoe street, (Club building.)

The yearly carnival was a success. Thousands of people came in from the

mountains to see it. The last day was set for masking. There was a great deal of fun for all and every one enjoyed it. I shall have to close the circuit before I overload it.

How about you No. 22; let's hear from you.

M. J. CULLEN,  
Press Secretary.

### Local Union No. 69.

Dallas, Tex., Oct. 30, '98.

Editor Electrical Worker:

I will try once more to send in a few lines. Sixty-nine is having a great time; has a crowded (?) hall every meeting night; had as many as eight members present at one time. I met one on the street who said, "I am coming up to-night if I can get off." You see him the next day and he says, "I tried to get down, but my wife was sick;" or, "I met a friend and we went to the opera house;" or, "I met a friend from (some other town) and I had to show him around;" any old thing to keep away. I think there is one way to tell a union man, and that is by looking at the roll-call of members. There are some of our members who have missed but two meetings since we organized, and then they were out of town or had something to do which made it impossible for them to come; and three or four others who have been to the meetings twice since we organized. Now, I think I could tell which of them are union men at heart and which are union men for policy's sake. Some of them say, "Why don't you keep still until you get in the lodge room? People know as much about our business outside as we do." Now, if a man has got a grievance to bring before his union, he would look nice wending his way up two pairs of stairs, light up, and sit down and talk to himself. You can come nearer getting seven members together on the street than you can in the lodge room. I am not much of a man, I guess, but there is one thing about me: If I hear anything some fellow said about me, I have got nerve enough to go and ask him about it; but some of the people in this neck of the woods had rather take revenge on the fellow's wife and children, keep him out of work, and think, "I will fix him." Well, I guess that is right (?) If a man has got anything against me, I would rather he would come and whip me and call it settled, and not work short-handed to keep me from making a living for my wife and babies. If anybody should happen to read this and don't like it, my address is 143 Emma street, Dallas, Tex.:

Lost, strayed or stolen from Local Union No. 69, Gus Johnston, H. A. Farington, C. A. Miller, Sam Sherer, Frank Kaseal, M. P. Breman, Joe O'Connell.

Here is some news; it is rather late, but better late than never: Married, at the

home of the bride's parents, at Texarcana, Ark., Mr. A. B. Otis and Miss Lola Hurt.

Some people around here don't like the letters I write, but I can not help it. I got my instructions from L. U. 69, one night when we had a quorum. I am going to continue until the 1st of January, 1899, unless we have a quorum and they tell me to stop writing them.

Mrs. M. A. Spurgeon wants to know if there is anyone who can tell her where her husband is. If they can, let her know. Her address is 492 Jackson street, Dallas, Tex.

W. B. COURTNEY,  
Press Secretary.

### Local Union No. 72.

Waco, Tex., Nov. 5, 1898.

Editor Electrical Worker:

Another month has rolled by and soon another year. It seems but a few short weeks since we were having Christmas time, but when we look back over the past ten months, and note what has been accomplished by local unions it is something wonderful. 'Tis true they have not had success in every place, but we cannot hope to always win and never lose. I am very sorry to say the motormen lost their strike here, for they were certainly in the right and they deserved to win for their good conduct and behavior. As long as they tried to get experienced men we could hold them off, for no one that was any part of a man would scab, but they run in a lot of farmers and of course \$1.50 per day was a fortune to them. We got them just where we could handle them when they shipped in nine professional scabs from St. Louis. Some of the same ones who were sent to Houston during their strike. Of course we could not talk them into anything. Am sorry to say that some of them got mixed up with some of the citizens and had to be took off in an ambulance. The boys held out two weeks and then gave it up. The company has put back some of the old men and say they will put all on as they come in order.

Well boys, the new telephone company is still a thing of the future. They have only till the first or December to begin work, think likely there is some gas contained in it. There is a small light plant under construction now but very little work on it. The Telephone Company started a gang south with two coppers yesterday. We are repairing and getting everything in shape for the winter. Every few days there is some lineman through looking for a job, and one thing I am glad of is most of them have a card.

E. P. MCBROOM,  
Press Secretary.

The delegates of the New York Central Labor Union, who have looked upon Clarendon hall as a labor fortress since 1882, when they first moved into it, have decided to move to other quarters on January 1st. The union charges that the present manager employs non-union waiters,

bartenders and musicians, the latter forming the orchestra in a music hall annex of the building.

### IN A PULLMAN CAR.

It was in a Pullman sleeper between Albany and Buffalo. Among the passengers were a middle-aged couple, evidently on their first journey, and a sour-faced old-maid, who was traveling alone. The couple had an upper berth and the "maiden well stricken in years" the upper berth in an adjoining section. In the same car were a couple of frolicsome youths, ready for any sort of mischief. Bedtime came and all hands retired. But the husband could not sleep. Whether it was because of the motion of the cars, the noise or the novelty of the situation, we could not tell; try as he would he could not sleep. At length it occurred to him that he was thirsty. The more he thought of it the more thirsty he got. So he called the porter, who brought the ladder and helped him down. Now, while he was gone for the water, one of the "boys" stepped out of bed and shifted the ladder so that it rested against the berth in which the ancient maiden was sleeping, and then returned to his bed to note the result. In a moment or two the husband returned and crept quietly up the steps, anxious to make as little noise as possible so as not to awaken his wife. The occupant of the berth rudely intruded on, awoke with a start and a scream. The husband supposing it to be his easily-frightened wife, tried to reassure her, and said: "Its only me."

"Only you, you old scoundrel," said the venerable maiden. "I'll teach you a lesson," and with that she seized him by the hair and screamed for help.

Then he howled with pain. Then his wife, awakened by the noise, discovered where her husband was, and raised her voice in lamentation, heaping reproaches upon her faithful spouse. Then the passengers all got up and demanded an explanation of the commotion, and foremost among them was the wretch who caused it all. Then the husband, covered with confusion, and utterly unable to account for what he had done, climbed down from his perch and slunk away to bed, where he was soundly lectured by his wife.

Altogether it was a most uncomfortable, though ludicrous, situation, and the glances of defiance that were exchanged between the wife and the old maid all through the next day were a study. The cause of all the trouble leaked out, but it never reached the ears of those chiefly affected by it.

**\$2.95**



**OUR 1899 MACKINTOSH**

SEND NO MONEY, cut this ad out and send to us, state your height and weight, bust measure, length of garment from collar down back to waist line, and waist line to bottom of skirt; state color wanted and we will send you this Mackintosh by express C. O. D., subject to examination; examine and try it on at your nearest express office and if found exactly as represented and by far the greatest value you ever saw or heard of, pay your express agent ONE SPECIAL OFFER PRICE, \$2.95, and express charges.

THIS MACKINTOSH is made of BLACK or BLUE genuine GAISSLEY double texture, waterproof PERGE CLOTH, with fancy plaid lining, velvet collar, double detachable cape, extra full sweep cape and skirt, guaranteed latest style and finest tailor-made.

FOR FREE CLOTH SAMPLES of everything in ladies' Mackintoshes, write for free Sample Book No. 85 C. AMERICAN SEARS, ROEBUCK & CO. (Inc.), CHICAGO, ILL. (Sears, Roebuck & Co. are thoroughly reliable.—Editor.)

"This season" said Mayor Quincy of Boston, we introduced a new and important feature in the free baths. We gave free instruction to children. Six swimming instructors were employed and between 3,000 and 4,000 children were taught to swim. Our only charge is for towels and for the use of a complete bathing suit. The rate is one cent for towels and five cents for suits. At one bathing place, situated in a part of the city where the poorest people live, we gave suits to men and women without cost, believing that even the low sum of five cents would keep many from the bath. This policy resulted successfully and will be continued. Two weeks ago we opened our first 'all-the-year-round bathing house.' This cost, with its equipments, \$70,000, and it accommodates 1,500 bathers at a time. Our 'all-the-year bath' is free, with the exception of one cent for a towel or one cent for soap, but these are furnished free to school children. This bath-house will lead to four or five more in different sections of Boston. In connection with the public bath I may add that Boston is conducting a large public indoor gymnasium with great success, and that we are now building a second one. Another somewhat novel departure for a municipality is our plan of free grand concerts. Then last summer we established a camp on an island in the harbor for boys who would otherwise have been unable to obtain an outing. Nearly 1,000 boys were given a week in camp, and it cost us only \$2 a boy. We expect to develop an important educational feature in connection with the camp next year. We have recently advocated the establishment of a series of free public lectures in school halls similar to those which have been given in New York city for a number of years."

An English telephone construction firm is introducing "household" telephones in Leicester. Where an electric-bell system already exists, it is possible by this arrangement to add the telephone service as well without extra wires. It is only necessary to have near the bell pushes a telephone set, and near the bell indicator an apparatus of similar appearance, or square base, with slightly different internal connections. The bell indicator and pushes can be used as with only a bell system, it being easy to denote by an extra ring when one wishes to communicate with the domestics by telephone.

### ELECTRIC LAWS AND RULES.

The knowledge of electricity can no longer be secured by fragments of information gathered here and there, put together on the scrap-book plan and made representative of the subject or of a particular branch of information on the constantly increasing and ever expanding science of this already extensive subject. Electricity has already become one of the most extensive and complete of the sciences and its essential principles are well understood. A knowledge of these principles is the best introduction that we can have to the comprehension of the subject. The laws that have been discovered as governing the application of these principles make a comprehension of electrical phenomena comparatively easy.

Electric information came slowly; for a number of generations there was no growth of electric knowledge after the first discovery that some substances, when rubbed, would show peculiar properties that did not previously exist, such as that of attraction of small and light bodies. For want of a specific name for these newly discovered manifestations the phenomena were called by the name of the substance used in producing it, "electron," which finally became known as electricity. This name has continued to the present day.

That two dissimilar metals were capable of producing an electric current under certain circumstances was the next discovery in electricity that was of sufficient note to be thoroughly investigated and the matter reduced to a law. Two dissimilar metals subjected to weak chemical influence will produce an electric current.

This effect is found, to a different degree, in the case of all metals. Production of electricity by such means was thoroughly investigated by Volta, who reduced the matter to the following law:

"The difference of potential between any two metals is equal to the sum of the differences of potential between the intervening substances in the contract-series."

This contract-series is of great importance in primary cells and batteries, which, by the way, are much reduced in usefulness by the generation of current by dynamos and the general distribution of electric currents from central stations.

Current electricity from dynamos is of such general application that the laws of currents, and other things pertaining to the subject, must, of necessity, be well understood by the student of electricity who becomes practically connected with the subject in any of its branches. The laws of electricity, many of them, were discovered long before there was much practical application made of this useful means of distributing and transforming power.

Ampere's laws of electro-dynamic action show that one current has an influence

over another current flowing in approximately a parallel direction in separate conductors and that when both currents are in the same direction there is an attraction between the two conductors even though the two sections may be a part of the same conductor, such as we find in coils of conductors, similar to those forming a part of a solenoid or electro-magnet; but when two neighboring conductors are carrying current and the flow of current is in an opposite direction there is then a repulsion of a strength equal to that of the attraction when both currents are flowing in the same direction.

An electro-magnet is a bar of iron about which an insulated conductor is wound; when the conductor is carrying current the iron becomes magnetic. Magnets have the same attractive and repulsive force upon one another as that just described as being the effect of the flow of current in neighboring conductors. The presence of iron increases the magnetic effects of the currents most greatly, because iron is a much better conductor of the magnetic lines of force than is air, consequently an insulated conductor of current, when wound upon an iron core, develops a much greater magnetic effect than that due to the flow of current alone. The strength of a magnet depends fully as much upon the purity of the iron forming the core as upon the strength of the current and the number of turns of conductor surrounding the iron.

Every conductor carrying a current is surrounded by a field of magnetism which forms no integral part of the current, yet is always present. This magnetism cannot be insulated by any known substance, in the same way that an electric current can be insulated and confined to the conductor.

The heating effect is one of the properties of all commercial electric current. It is due to the amount of current flowing and the resistance of the conductor. A great many years ago this effect of currents had been carefully investigated and reduced to a rule which is represented as  $C^2R$ ; which means that the square of the current in amperes multiplied by the resistance in ohms equals the heating effect,  $J$ , which stands for Joule, the unit of heating effect.

The resistance to the flow of electricity which is mentioned with the above description of the heating effect of current has a unit, called the ohm, while the unit of the flow of current is the ampere and to force this current against the resistance the pressure necessary is calculated in volts, which is always the product of the current in amperes by the resistance in ohms. As these laws were all formulated more than sixty years ago it need not be surprising that the use of electric currents has made such advancement in the last few years.



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1,000 CELEBRATED "SANTWELHOOT" double seat and double knee. Regular \$3.50 boys' 2-piece knee-pant suits going at \$1.95.

A NEW SUIT FREE for any of these suits which don't give satisfactory wear.

Send No Money. and send to us, state age of boy and say whether large or small for age, and we will send you the suit by express, C.O.D., subject to examination. You can examine it at your express office and if found perfectly satisfactory and equal to suits sold in your town for \$3.50, pay your express agent our special offer price, \$1.95 and express charges.

THESE KNEE-PANT SUITS are for boys from 4 to 15 years of age, and are retailed everywhere at \$3.50. Made with double seat and knees, latest 1899 style as illustrated, made from a special wear-resisting, heavy weight, ALL-WOOL, Oakwell casimere, neat, handsome pattern, fine serge lining, Clayton patent interlining, padding, staying and reinforcing, silk and linen sewing, the tailor-made throughout. A suit any boy or parent would be proud of. FOR FREE CATALOG SAMPLES of boys' clothing (suits, overalls, or trousers), for boys 4 to 15 YEARS, write for Sample Book No. 500, contains fashion plates, tape measure and full instructions how to order.

Men's Suits and Overalls made to order from \$5.00 up. Samples sent free on application. Address, SEARS, ROEBUCK & CO. (Inc.), Chicago, Ill. (Sears, Roebuck & Co. are thoroughly reliable.—Editor.)

Even as many years ago, Prof. Ohm gave us a law of currents which has stood the test of all the recent developments, remaining to-day as the fundamental law of currents. Ohm's law tells us that the strength of current in any conductor may be ascertained by dividing the electromotive force, in volts, by the resistance of ohms. This law is practically correct for the flow of any kind of electric current in a conductor, but there are sometimes other things to be considered which modify the effect thus obtained, as in the case of alternating currents, which pulsate back and forth instead of flowing steadily in one direction.

Electric and magnetic induction are peculiarities for which no satisfactory explanation has yet been given, although the principles of both electric and magnetic induction are utilized largely in nearly all, if not quite all, electro magnetic devices. When an electric current is started in one conductor it will produce a momentary current in a neighboring conductor which forms a closed circuit. This latter current is called an induced current. Magnetism excited in an electro-magnet will excite magnetism in a neighboring magnet and the excitation of magnetism in the core of a magnet will produce a momentary flow of electric current in a closed circuit wound about the magnet. The result is due to magnetic induction. Another peculiar feature of the matter is that while magnetism will induce current in a closed conductor the beginning or ending of the flow of current will induce a momentary flow of current in a neighboring conductor. The flow of electricity will produce magnetism, changes in the strength of magnetism will produce electricity in a conductor, while the magnetism of one magnet will induce magnetism in another magnet, there being no physical condition between the different circuits, or magnets, or between electric circuits and magnets, these effects all being due to electric and magnetic induction.

Electric and magnetic induction are due to the magnetic lines of force, which in one case surround the conductor through which current is flowing and in the other case emanate from the magnets. As has been explained, there being no insulator of these magnetic lines of force they surround the conductor or magnet, as the case may be, and strike the neighboring magnet or conductor with sufficient force to produce an electric current in the conductor or develop magnetism in magnetic metals. Dynamos and motors are machines made to utilize these principles to the best advantage on a practical scale. Having the magnet, a conductor is wound about a revolving portion of the machine in such a way that the conductor is subjected to the influence of alternate poles of the magnet

or, in another case, the magnet may be revolved while the coils of conductor remain stationary.

A permanent magnet might be used in a dynamo or motor and give some results, but as an electro-magnet can be made about twenty times stronger and its strength can be varied to an extent that will permit of making the machine self-regulating, the electro-magnet is always used. The difficulty of making permanent magnets of uniform strength is another reason of their not being used more extensively.

#### THE OTHER SIDE.

BY J. A. EDGERTON.

It may be easy for those with wealth to sing of the pleasures of life,

For wealth means pleasure and comfort and ease and others to carry you through;

But, given a life with mouths to feed and the means to be wrung from a strife, With every man's hand against you, and the weight to be carried beside

Of the parasites hanging above you, and the best that you could do,

To endlessly labor—for what?—for the leave to labor on till you died,

Would you feel that such a life would be a meed of endless delight?

But there is pleasure and this it is, to labor on for the right.

The world is raving, "keep still," to us; it has ever raved the same;

But thought is free, and the way's to be cleared, so we're going to work it through.

Whoever a coward and faint-heart is, let him cower to the world and—shame!

But whoever has manhood, a warm heart and strength; whose nature is all true blue,

Come on, we will go where the way is rough and try what good we can do.

We will go our way cheerily, boys, and laugh at the world's cold spite.

For there is a pleasure and this it is, to labor on for the right.

Man never began on the path of progress to stop when he got thus far.

We have but started; we're going ahead, in spite of the piping voice

Of each poor, old croaker, who wheezes and whines, to whom every straw is a bar

That he cannot get over. Away with such. We will seize the banner, boys,

And go on mounting the hill of Hope, where a voice is crying, "Rejoice,

The morn is breaking, the world is waking." Cheerily send the cry

The world around to the farthest bound, till it pierces the farthest sky.

Onward, on! Never let up, while a tyrant is left in sight;  
For there is a pleasure and this it is, to labor for the right.

#### HIS QUANDARY.

An old Irish laborer walked into the luxurious studio of William Keith, the artist, a few days ago and asked for money to obtain a meal. He explained that he had just been discharged from the county hospital and was too weak to work. Mr. Keith gave him a quarter and he departed. One of four young ladies, art students, who were present, said: "Mr. Keith, can't we hire that old man and sketch him?" Keith ran out and caught him, and said: "If you can't work and want to make a dollar come back to my rooms. The young ladies want to paint you." The Irishman hesitated, so Keith remarked: "It won't take long, and it's an easy way to make a dollar." "Oí know that," was the reply; "but Oí was a wonderin' how th' devil Oí'd git th' paint off afterwards."

The Social Democracy colony in Washington is now an accomplished fact. The co-operative brotherhood which was organized and incorporated under the laws of the state of Washington by national officers of the Social Democracy of America, to carry on the work of colonizing in this state, has made the selection of a colony site and secured its land. The officers of the company were elected at a recent meeting of the board of directors, and resulted in the selection of the following: President, J. S. Ingalls of Minnesota; vice-president, J. C. DeArmond of Colorado; secretary, Cyrus Field Willard of Massachusetts; treasurer, P. H. McKernan of Washington; auditor, J. B. Fowler of Washington. An office was immediately secured at room No. 520 Pioneer building, Seattle. Arrangements have been completed by which about 1,000 acres will be secured on Henderson Bay, about five miles from Olalla, and conditions are such that in the neighborhood of 2,000 more acres can be secured if deemed advisable. "We expect," says Secretary Willard, "now to bring in thousands of honest and industrious American citizens from the east to build up happy and contented homes for themselves and to increase the wealth and population of this great Empire State of the Northwest."

**\$2.75 BOX RAIN COAT**  
A REGULAR \$5.00 WATERPROOF  
MACKINTOSH FOR \$2.75.

**Send No Money.** Cut this ad. out and send to us, state your height and weight, state number of inches around body at breast taken over vest under coat close up under arms, and we will send you this coat by express, C. O. D., subject to examination; examine and try it on at your nearest express office and if found exactly as represented and the most wonderful value you ever saw or heard of and equal to any coat you can buy for \$5.00, pay the express agent our special offer price, \$2.75, and express charges.

**THIS MACKINTOSH** is latest 1899 style, made from heavy waterproof, tan color, genuine Basile Cover Cloth; extra long, double breasted, Sargent velvet collar, fancy plaid lining, waterproof sewed, strapped and cemented seams, suitable for both rain or overcoat, and guaranteed greatest value ever offered by us or any other house. For Free Cloth Samples of Men's Mackintoshes up to \$5.00, and Made-to-Measure Suits and Overcoats at from \$5.00 to \$10.00, write for Free Book No. 501, Address:

**SEARS, ROEBUCK & CO., CHICAGO, ILL.**  
(Sears, Roebuck & Co. are thoroughly reliable.—Editor.)



## Directory of Unions.

Secretaries will please furnish the necessary information to make this directory complete. Note that the time and place of meeting, the name of the President, the names and addresses of the Recording and Financial Secretaries are required.

**No. 1, St. Louis, Mo.**—Meets every Monday at 601 Market st. Pres., S. M. Keeble, 2618 Rutger st.; St. R. S. W. J. Squires, 2816 Washington av.; F. S., P. C. Fish, 1927 N. 15th st.

**No. 2, Milwaukee, Wis.**—Meets every Friday at 298 Fourth st. Pres., Joe Harris; F. S., J. H. White.

**No. 3, St. Louis, Mo.**—Meets every Saturday at Lightstone's Hall, 11th and Franklin av. Pres., A. P. Blackford, 13th and Market, care Garfield House; R. S., J. L. Cuthbert, 2027 Pine st.; F. S., E. H. Bocck, 1350 Kennerly st.

**No. 4, New Orleans, La.**—Meets 1st and 3d Tuesdays at Carondelet and Perdido sts. Pres., J. McGregor, 2117 Rousseau st.; R. S., C. M. Hale, 630 St. Mary st.; F. S., R. B. Joyce, 331 S. Bassin st.

**No. 5, Pittsburgh, Pa.**—Meets every Friday night in Schmitz Bldg., cor. Water and Market sts. Pres., Geo. M. Rudolph, 154 Herron ave., Pittsburgh, Pa.; R. S., Frank Lunney, 301 Robinson st., Allegheny, Pa.; F. S., Fred H. Willsdorn, 34 Sandusky st., Allegheny, Pa.

**No. 6, San Francisco, Cal.**—Meets 2d and 4th Wednesdays at Foresters' Hall, 20 Eddy st. Pres., Wm. Barston, 214 Union st.; R. S., A. A. Whitfield, 632 Natoma st.; F. S., R. P. Gale, 1008 Hyde st.

**No. 7, Springfield, Mass.**—Meets every Wednesday at room 14 Barnes Bldg. Pres., G. T. McGilvrey, 30 Besse Pl.; R. S., T. J. Lyuch, 103 Sheridan st., Chicopee Falls, Mass.; F. S., M. Farrell, 59 Broad st.

**No. 8, Toledo, O.**—Meets every Monday at Friendship Hall. Pres., C. W. Schausten, 1815 Ontario st.; R. S., W. H. Kessler, 701 South st.; F. S., F. M. Gensbecher, 713 Colburn st.

**No. 9, Chicago, Ill.**—Meets every Saturday at 106 E. Randolph st. Pres., W. A. Jackson, 197 S. Jefferson st.; R. S., C. D. Batt, 5815 Union av.; F. S., J. Diiscoll, 77 Fuller st.

**No. 10, Indianapolis, Ind.**—Meets 1st and 3d Mondays at 291/2 W. Pearl st. Pres., John Berry, care hqrs. Fire Dept.; R. S., E. T. Busselle, care N. Tel. Co.; F. S., E. C. Hartung, rooms 5 Cyclorama Bldg.

**No. 12, Greater New York, N. Y.**—Pres., James B. A. McElroy, 310 E. 37th st., New York; R. S., Edward L. Miller, 49 W. 114th st., New York; F. S., Frank B. Smith, 611/2 Lynch st., Brooklyn.

**No. 17, Detroit, Mich.**—Meets every Tuesday night at No. 9 Cadillac sq. Pres., R. Scanlan, 99 Porter st.; R. S., Frank Campbell, 180 Debois st.; F. S., P. Andrich, 985 Van Dyke av.

**No. 18, Kansas City, Mo.**—Meets every Friday night, Labor hqrs., 1117 Walnut st. Pres., F. Hohn, 761 Del. st.; K. C. Kane, R. S., F. J. Schadel, 612 Wall st.; K. C. Mo., F. S., W. L. Hutchinson, 1605 Harrison st.; K. C. Mo.

**No. 19, Atchison, Kan.**—Pres., F. J. Roth, 906 N. Tenth st.; R. S., S. Wickham; F. S., R. C. Easton.

**No. 22, Omaha, Neb.**—Meets every 1st and 3d Wednesdays at Labor Temple, 17th & Douglas sts. Pres., J. S. Tobias, 2923 S. 18th st.; R. S., J. C. Schneider, 1706 S. 17th st.; F. S., P. L. Myers, 711 N. 16th st.

**No. 23, St. Paul, Minn.**—Pres., J. H. Road-Louise, 150 Sherburne av.; R. S., E. B. Powers, 951 Bradley st.; F. S., A. H. Garrett, 201 W. C. st.

**No. 24, Minneapolis, Minn.**—Pres., O. R. Shortall, R. S., W. I. Heywood, 16 E. 26th st.; F. S., P. H. C. Wood, 2731 Fremont av. S.

**No. 25, Duluth, Minn.**—Meets 2d and 4th Thursdays at room 6, Banning Bldg. Pres., Q. Thayer, 24 Third av.; R. S., L. P. Runkle, 17 Norris Bldg.; F. S., Jas. F. Owens, 414 E. First st.

**No. 26, Washington, D. C.**—Meets every Saturday at 678 Louisiana av. Pres., John Hoffecker, 1007 N. Carolina av. S. E.; R. S., J. C. O'Connell, 950 E. st., N. W.; F. S., G. A. Malone, 48 L. st., N. W.

**No. 27, Baltimore, Md.**—Meets every Monday at Hall cor. Fayette and Park avs. Pres., D. J. Hammett, 1030 N. Broadway; R. S., J. P. Jones, 1151 N. Mount st.; F. S., F. H. Russell, 1408 Asquith st.

**No. 30, Cincinnati, O.**—Meets 1st and 3d Mondays at 136 E. Court st. Pres., Thos. Spellisey, 425 W. 4th st.; R. S., John F. Harmuth, 2158 Vernon st.; F. S., Geo. R. A. Hilderbrand, Burlington House, 3d and Broadway.

**No. 31, Anacosta, Mont.**—Pres., W. J. Leonard, care Elect. Light Co.; F. S., H. Jorgens, 612 Pine st.

**No. 32, Burlington, Ia.**—Pres., G. M. Cunningham, 351 and 353 Front st.; R. S., Hugh Ward, 1006 Spruce st.; F. S., Al. Fox, 637 S. Fifth st.

**No. 35, Boston, Mass.**—Meets every Wednesday at 49 Bennett st. Pres., M. Burningham, 284 N. Beacon st., Brighton; R. S., J. F. Phelps, 75 Waldeck st., Dor.; F. S., W. C. Woodward, 10 Church st.

**No. 36, Sacramento, Cal.**—Meets 1st and 3d Tuesdays at Foresters' Hall. Pres., J. S. Marsh, 600 7th st.; R. S., O. Buckins, 1415 D st.; F. S., R. A. Fisk, 804 K st.

**No. 37, Hartford, Conn.**—Meets every Wednesday at 603 Main st. Pres., F. H. Roberts, 87 High st.; R. S., W. B. Maloy, 68 Retreat av.; F. S., John J. Tracy, 58 Temple st.

**No. 38, Cleveland, O.**—Meets every Wednesday night at 356 Ontario st. Pres., Geo. H. Gleason, 110 Maple st.; R. S., C. J. Minch, 16 Salzer st.; F. S., A. Herron, 4 Wallace st.

**No. 40, St. Joseph, Mo.**—Meets every Thursday night at Brokaw Hall, 8th and Locust sts. Pres., Frank P. St. Clair, R'y Co.; R. S., Wm. T. Dorsel, R'y Co.; F. S., J. C. Schneider, City Elec. St. Co.

**No. 41, Buffalo, N. Y.**—Meets every Wednesday at Council Hall. Pres., Chas. E. Taylor, 7 Yale pl.; R. S., Geo. W. Bass, 169 Vermont st.; F. S., H. M. Scott, 363 N. Morgan st.

**No. 42, Utica, N. Y.**—Pres. J. H. Smith; R. S., W. P. Carter, 65 Neilson st.; F. S., F. J. Murphy, 272 Third av.

**No. 43, Syracuse, N. Y.**—Meets 1st and 3d Tuesdays at McCarthy's Hall, Market st., opp. City Hall. Pres., A. Donovan, 310 Niagara st.; R. S., F. N. Stiles, 734 E. R. R. S.; F. S., Wm. H. Gough, 108 Hawthorne st.

**No. 44, Rochester, N. Y.**—Meets 2d and 4th Wednesdays at Odd Fellows' Hall, State st. Pres., John Kenealy, 50 Frank st.; R. S., John Wolff, 9 Cedar st.; F. S., Fred Martin, 50 Champlain st.

**No. 45, Buffalo, N. Y.**—Meets 1st and 3d Saturdays at Council Hall. Pres., John Marion, care W. U. T. Co.; R. S., John Daly; F. S., M. E. Stables, 46 Kail st.

**No. 46, Lowell, Mass.**—Meets every Thursday at 202 Merrimack st., 3d floor, room 5. Pres., Lester G. Hall, P. O. Box 292; R. S., H. L. Whitney, 6 Puffer av.; F. S., R. V. Cole, 169 Mt. Hope st., Pawtucketville, Mass.

**No. 47, Worcester, Mass.**—Meets every Wednesday evening at 306 Main st. Pres., S. A. Stout, 150 Austin st.; R. S., V. V. Reed, 61 Myrtle st.; F. S., Chas. C. Coghlin, 113 West st.

**No. 48, Decatur, Ill.**—Meets at Cigarmakers' Hall, E. Main st. Pres., J. B. Mullenix, 611 Spring st.; F. S., F. E. Aldrich, 115 Wood st.

**No. 49, Chicago, Ill.**—Pres., F. J. Struble; R. S., W. J. Dempsey, 376 Austin av.; F. S., Chas. E. Fowler, 219 W. Congress st.

**No. 52, Davenport, Ia.**—Meets 1st and 3d Tuesdays. Pres., A. L. Wheeler, Atlantic Hotel; R. S., J. H. Clarke, 215 Iowa st.

**No. 53, Harrisburg, Pa.**—Pres., C. A. Swager, 1151/2 Market st.; R. S., Jas. Emminger, 25 N. 15th st.; F. S., C. Anderson, 46 Summitt st.

**No. 55, Des Moines, Ia.**—Meets every Thursday night at Trades Assembly Hall. Pres., J. Fitzgerald, 1924 Siner st.; R. S., C. C. Ford, 715 Scott st.; F. S., M. O. Tracey, 212 Raceon st.

**No. 56, Erie, Pa.**—Meets 1st and 3d Wednesdays. Pres., John Disbrow, 1016 Sassafras st.; R. S., L. E. Carson, 303 French st.; F. S., H. M. Kistner, 7 E. 7th st.

**No. 57, Salt Lake City, Utah**—Sec'y, R. Blair, care Citizens' E. L. Co.

**No. 60, San Antonio, Tex.**—Meets 1st and 3d Saturdays at 8 p. m., in Painters' Hall, 131 Soldud st. Pres., Roy S. Cushman, 409 Wyoming st.; R. S., W. P. Anderson, 414 6th st.; F. S., M. E. McElroy, 1725 W. Commerce st.

**No. 61, Los Angeles, Cal.**—Pres., P. Buchanan, 357 N. Main st.; R. S., W. A. Woodie, Box 84 Station B; F. S., S. L. Bruce, 432 Colyton st.

**No. 62, Kalamazoo, Mich.**—Pres., Leon Bellman, 1102 Porter st.; R. S., Wm. Theckery, 1233 Portage st.; F. S., L. Burnett, 116 N. Church st.

**No. 63, Warren, Pa.**—Meets 1st and 3d Wednesdays at D. O. H. Hall, cor. 2d and Liberty sts. Pres., E. W. Terry, 414 Laurel st.; R. S., W. A. Pulliam, Exchange Hotel.

**No. 65, Butte, Mont.**—Meets 2d and 4th Wednesdays in Good Templars' Hall. Pres., E. A. Cherry, Care Mout. E. Co.; R. S., W. C. Medhurst, P. O. Box 846; E. M. DeMers, P. O. Box 846.

**No. 66, Houston, Tex.**—Meets 1st and 3d Mondays. Pres., R. K. Tripp; R. S., W. P. Johnson, Telephone Office; F. S., G. O. Wood, 1203 Capitol avenue.

**No. 67, Quincy, Ill.**—Meets 2d and 4th Wednesdays at Trades Assembly Hall, S. 8th st. Pres., W. F. Wagner, 551 Locust st.; L. O. Constanz, 401 S. 9th st.; C. H. McNamee, 511 S. 7th st.

**No. 68, Denver, Col.**—Meets Monday nights at 1731 Arapho st., Club Bldg.; Pres., Chas. Sallstrom, 1551 Ogden st.; R. S., C. W. Armstrong, 2455 Lincoln av.; F. S., H. T. Clark, 808 14th st.

**No. 69, Dallas, Tex.**—Meets every Tuesday evening at Labor Hall. Pres., W. B. Courtney, 120 Emma st.; R. S., C. E. Boson, 143 Emma st.; F. S., P. F. Barnes, Commerce and Prather sts.

**No. 70, Springfield, Ill.**—Meets 1st and 3d Thursdays, Carpenters' Hall, S. 4th st. Pres., Fred Miller, Staley Hotel; R. S., Chas. Danilson, 1118 E. Jackson st.; F. S., S. Phillips, 842 N. 3d st.

**No. 71, Galveston, Tex.**—Meets 2d and 4th Thursdays, Cooks and Waiters' Hall, 23d st., between Market and Mechanic. Pres., J. F. Payne, 1528 22d st.; R. S., D. L. Goble, 3320 R. 1/2 st.; F. S., D. K. Garrett, 1204 39th st.

**No. 72, Waco, Tex.**—Meets 2d and 4th Wednesdays at Labor Hall. Pres., E. P. McBroom, S. W. Tel. Ex.; R. S., G. R. Lockhart, 931 S. 6th st.; F. S., Joseph Hedges, 728 S. 6th st.

**No. 73, Spokane, Wash.**—Meets 1st and 3d Wednesdays in K. of P. Hall, 816 Riverside av. Pres., Eli Hensley, 218 Riverside av.; R. S., G. Pagel, P. O. Box 635; F. S., C. C. Van Inwegen, P. O. Box 635.

**No. 74, Winona, Minn.**—R. S., Harry P. Teigate, 611 Wilson st.; F. S., Joseph Trautner, 620 R. 3rd st.

**No. 75, Grand Rapids, Mich.**—Meets 1st and 3d Sundays. Pres., A. D. McLellan, 29 E. Bridge st.; R. S., C. Burns, care Citizens' Tel. Co.; F. S., C. E. Post, 167 St. Clair st.

**No. 76, Tacoma, Wash.**—Pres., Wm. Kane, 1136 D st.; R. S., W. J. Love, 113 10th st.; F. S., Jas. Murray, 1118 D st.

**No. 77, Seattle, Wash.**—Pres., J. J. Mailand, 231 Pontius av.; R. S., C. H. Randall, 815 2d av.; G. G. Jenkins, 1319 14th av.

**No. 78, Saginaw, Mich.**—Pres., Jas. Hodgins, 308 N. Franklin st.; R. S., John Strachan, 336 N. 2d st.; F. S., Chas. Ross, P. O. Box 225 E. S.

**No. 80, Cleveland, O.**—Pres., A. A. McDonald, 556 Superior st.; R. S., Maud Myles, 186 23d av.; F. S., N. Hall.

Members of the Cleveland Retail Clerks' Association, who were looking for evidence yesterday against violators of the Sunday labor law, did not have any trouble securing it. Nearly all of the clothiers who have been in the habit of keeping their places of business open Sunday morning from 8 to 12 o'clock did so last Sunday.

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